University News

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IN THIS ISSUE

Higher Education in the USA 5
69th Science Congress 7

Convocation

Social relevance of education to society 15

Campus News

Tamil Varsity to acquire computers for research 17
More funds for adult education needed 17
Conference on the role of women in education of young people 18
Bihar Varsity Board meets in Ranchi 19
Medical education review committee to consider future projects 20

Agriculture

Rao warns against regionalism in universities 20
New agriculture colleges for Bihar 21

Science & Technology

Environmental studies in varsity curricula suggested 21
ISM to host Indo-polish symposium 22

News from UGC

UGC restructuring of undergraduate courses 22

Award Medals

Borlaug Award 23
Bhatnagar Awards 23
Research in Progress 24
Theses of the Month 25
Current Documentation in Education 27
Classified Advertisements 28

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : ANJNI KUMAR

Rights of Minority Institutions

E. D. Devadason

Article 30(1) of the Constitution of India has granted to "all minorities, whether based on religion or language, the right to establish and administer educational institutions of their choice". As a corollary to the right, the following Article, namely, Art. 30(2), enjoins upon the State to grant aid to educational institutions without discriminating against any institution on the ground that it is under the management of a minority, whether based on religion or language.

The right to establish and administer educational institutions is part of the well recognised human rights in all civilised communities who subscribe to the theory of 'Live and let Live'. Most of the Fundamental Rights enshrined in the Constitution are in consonance with the universally accepted principles of human rights, including the rights of the minority institutions.

By this provision it does not mean that the minorities are given greater rights than the majority, because equality before law precludes discrimination. Is this clause inconsistent with the clause of equality between various sections of the community ? According to the advisory opinion of the Parliament Court of International Justice on minority schools in Albania.

"Whereas equality in fact may involve the necessity of *differential treatment in order to attain a result which establishes an equilibrium between different situations.*

. . . . It is easy to imagine cases in which equality of treatment of the majority and of the minority whose situation and requirements are different, would result in inequality . . . . . The equality between members of the majority and of the minority must be effective, genuine equality.'

It should not be thought that in the context of the above provision, the State is helpless, because the courts have held that "the right to administer is not a right to mal-administer." Therefore, any institution misusing the rights of the minority institutions can be always brought under the checks and regulations of the State. The minority institutions have sought to resist interference by the State only when they have experienced that interference by the State is not in the interest of their educational institutions. It would, therefore, follow that if the same rights are granted to institutions run by other bodies, it will be to their benefits also. The minority institutions do wish that the same rights should be granted to other institutions in their own interest. The States can always declare that they will not apply to the institutions run by the majority community such of those rights which cannot be applied to the institutions run by the minority communities.

The courts have repeatedly held that the minority institutions should be subject to such regulations as are necessary to maintain the proper quality of education, that they will be bound by the curriculum and syllabi and common standards in educational institutions, qualifications prescribed by Government, the number of students to be admitted, the class rooms and the size of the class rooms etc. These prescriptions are applicable to minority institutions as well. Only in regard to appointment of teachers and the discipline and control over the staff and the admission of students the problem has arisen.

The courts have held that it is within the right of the management to choose as the Principal or Headmaster a person whom it considers suitable and the State cannot interfere with this right. The State has no right to impose a Selection Committee on a minority institution for choosing the staff nor can it insist on its prior approval of such appointments. However, the State has the right to specify the qualifications and also to prescribe the service conditions for the staff of the minority institutions. The problem has risen only in regard to disciplinary action taken by the management. The courts have held that the disciplinary action taken by the management cannot be vetoed by the State authorities. The State can stipulate the procedure to be followed for disciplinary action to be taken against the staff without interfering with the effective management of the institution by the management. Therefore, it will be unconstitutional to prescribe a tribunal or the mode of arbitration where the minority management will have no controlling voice in determining the disputes between the staff and the management.

It should be noted by the teaching community that no educational institution will ever like to dispense with a good teacher. The troubles have risen only in regard to teachers who do not contribute to the maintenance of the quality of education desired by the management. The teaching community has a tendency to consider any action taken by the management as arbitrary and punitive. The managements of minority institutions should dispel the fears the teaching community have by establishing tribunals of their own which are independent of the management and in which the teachers have confidence.

The institutions should be willing to establish independent Tribunals by requesting a retired Judge of the High Court, or a Vice-Chancellor or Principal to enquire into matters involving disciplinary action against the teaching staff and others employed in minority institutions so that the staff will have the confidence that they will not be subject to any arbitrary action according to the whims of the management.

The difficulty has arisen between the minority institutions and the State only because the Government seems to think that in a dispute only the rights of the teachers are involved without any consideration for the rights of the parents or the pupils. In an educational institution, the primary consideration has to be given for the interests of the students studying there. The managements of minority institutions attach great importance to the education of the students entering their institutions. The Government is obsessed with the rights of teachers on account of the teachers union pressures brought to bear upon it. In this conflict the paramount importance of the education of the students is ignored or at any rate not given its due importance.

The problem should not be looked upon merely as a right of the minority institutions. It has to be seen in the larger context. According to Art. 26 of the Universal Declaration of Human Rights "Parents have the prior right to choose the kind of education that has to be given to their children". In India various types of educational institutions are available, some belonging to the Government, some to local bodies and yet others to private managements including minority institutions. The parents choose the type of education that should be given to their children by choosing the educational institutions.

It is in the interest of the school and the pupils that the managements maintain continuity of education by retaining teachers as far as possible and provide the necessary stability. The parents observe all these factors closely and the public opinion in regard to an institution is shaped by all these factors. The fact that there is considerable demand for places in the institutions run by minorities compared to other institutions, will show that at any rate their privileges have not been misused and the parents prefer to send their children to these institutions. Therefore by curtailing these institutions the Government only seeks to curtail the right of the parents to choose the kind of education they want. By reducing the choice the State reduces their freedom.

The teaching community, viewing objectively should have little complaint against the management. These minority institutions do not exist because of Art. 30(1) of the Constitution of India but on account of the demand they have created for themselves and as a result of the large measure of goodwill the mojority community has for these institutions.

The problem very often arises only on account of the obduracy of the bureaucracy. The education

(*Continued on page 34*)

Higher Education in the USA : Some Attitudes and Practices

K. Dutta Choudhury

Having lived in the Unites States fo America for a good number of years both as a student as well as a professional, I have gained some insight into some aspects of higher education in the country. It would be appropriate to present before our readers some prevailing attitudes and practices of the educators and students toward higher education in American universities. These attitudes and practices, which are in part a projection of the same that prevails in other areas of the society have profoundly shaped the continually evolving nature and quality of higher education in America. They have also affected the educational processes in the world beyond her shores. Students from all over the world flock to the universities here to obtain education not only in the conventional areas but also in the rapidly emerging frontiers of science and technology. Even with the establishment of fine educational institutions in other countries both developed and underdeveloped the flow has not ceased and is not likely to in the near future.

High cost of education

University education even by American standards is very expensive. Tuition per semester may vary from $ 500 to $2,500 in good universities. For the very prestigious schools it is much more. Boarding cost in dormitories is also very high. To cut down on living expenses, students generally share an apartment with two or three other students. Since food habits are very simple, that arrangement does not create problems. The average price of an engineering book runs about $25. Considering all these expenses, the average expenditure of a two year master's degree programme in science or engineering can easily run into $ 20,000—a staggering amount of money. Of course a large percentage of graduate students obtain some form of financial assistance from their departments and almost no American student enrolls in the doctoral program without financial assistance either research or teaching. A large number of graduate students are from foreign countries. Most of the American parents cannot afford to part with such a large sum of money. The reason lies in the economic structure of the society itself. So the students of necessity, have to take up part-time jobs if they want to pursue university education. This is in sharp contrast with the Indian situation where the parents and brothers come up with the finances, sometimes with great sacrifice and hardships to themselves. The American students have to be highly dedicated to go through the financial and physical hardships of university education. It must be pointed out that opportunities for part-time work do exist and the students take advantage of them. Summer is the time when the students earn most of their money by working in the construction as well as other industries as labourers, builders, fabricators, assemblers, etc.—any kind of job which pays well. Students also take advantage of student loan programmes which they can start paying back in instalment after graduation. The interest rate for such loans is nominal.

Hard work at school

American educational programmes have been systematized at all levels from elementary stages to graduate study programmes. As an essential part of this systematization, there is great emphasis on, and a good deal of, home work quizzes, tests, term papers and short examinations. Such a grilling process helps in assimilation of the subject matter. If the student is not prepared to be up to the mark of a particular course, he can drop out of the course with the concurrence of his adviser. If that course happens to be a requirement for graduation, the student has to take a lower level course in that area and take the dropped course at a later time before graduation. Doctoral students cannot escape from the structured program. Before being allowed to proceed on to the dissertation phase, the doctoral student has to fulfil course requirements both in his major and his minor fields.

In most American universities, from the first day school begins to the end of the semester, it is almost an endless series of home work assignments through the night for submission the next day. Since good grades are important no student dare risk late submission of an assignment. Grade point average or GPA is a measure of the student's mastery of the coursework. Good GPA is a must for admission to graduate studies.

In addition to these academic requirements and the demands they place on the student's time, many of the students have to work in facilities near the campus, at whatever jobs are available. Students majoring in computer science or in areas involving much computer work, spend a large portion of the day as well as the night in the computer centres which are kept open for almost 24 hours except on weekends. The computer hum centres with the activities of professors, re-research scholars and students.

Educational flexibility

America is a need oriented society. Consequently, the Educational flexibility geared towards meeting the entire spectrum of her societal needs.

These needs are quite often projected in advance or created with the purpose of generating business. So the universities have to follow suit by incorporation of developments in various fields to meet the demands of the time. Flexibility in selection of course curricula leave enough options for the students for career development. The students select courses according to their perception of their needs for career development with suitable help from guidance counsellors. The educational programmes do not necessarily lead to the frontiers of science and technology. One may choose to be a control systems engineer specializing in the application of computers in the process or manufacturing industries. He does not have to be a computer specialist. What he does is that he chooses some courses from control systems area and blends that selection with some courses from computer hardware and software areas. He may be majoring in electrical, mechanical or chemical engineering or he may be a student of physics or mathematics.

What counts most is his ability and interest and not his formal background. A solid state device fabrication engineer may have been a graduate of electrical engineering, physics and chemistry. A very distinguished professor of electrical engineering who was a specialist in computer simulation of solid state devices was a Ph.D. in applied mathematics from the Cambridge University, England. His background blended very well with the need of the time.

Changing emphasis

American higher education is subjected to pressures due to changing national requirements and priorities. As a result, updating of course curricula consistent with developments in the field as well as the requirements of the country, is a constant endeavour of the educators. The book publishing companies also take advantage of this situation by bringing out new books with subject matters presented in a different way with different contents. Professionals try to keep themselves up-to-date by being members of various professional book clubs or by attending many of the continuing education programmes offered by the universities or the professional societies. Numerous research journals and publications meet the needs of the research people. On the other hand do it yourself books are easy aids for the general public. Even well established professors cannot afford to lag behind for fear of being left out of the main stream of research activities. They have to keep themselves abreast of new developments in their own as well as related fields.

A need arose for me to do a simulation work on a research project I had undertaken early in my educational career in the USA. I needed to use a computer to do the work, but I had no background in computers at that time. A professor of biostatistics and chemical engineering was offering a preliminary course on computer applications for novices like me. He had also written a book on the subject. To my pleasant surprise I found an elderly professor of our department taking notes from the lecture. In later years I found professors renowned in their areas of specialization attending courses in other engineering areas to keep themselves up to date. A professor in the Department of Philosophy in the same university was a pioneer in some aspects of the area of computer logic early in his life.

The whole wide world of knowledge and creativity remains unexplored and the American curiosity, ingenuity and the spirit of adventure are constantly driving them to move forward towards that goal. The moon landing of the sixties and early seventies and space shuttle programmes of the very recent times are examples of a culmination of the scientific and technological optimism of the nation. Incidentally, much of the research programmes connected with them were carried out in the American universities, with participation of students as well as professors.

During the sixties and the decade before that physics occupied the most exalted position in the national scene due to the importance of physicists in the areas of nuclear science and later in the space programme. But since these programmes have now been scaled down very extensively only those who are extremely devoted to the subject opt for graduate studies in physics. Many physicists chemists and mathematicians even with doctoral degrees are turning towards another degree in computer science which holds ample opportunities in the job market. Some years ago, the trend was somewhat towards industrial engineering.

Blending of subject matters from various areas according to the need of the time e.g. from physics, biology, statistics, chemistry and engineering has resulted in course offerings entitled as environmental science, biostatistics, bio-engineering and so on and so forth. People are needed in these areas for field as well as laboratory work. American ingenuity to project need for its products, be it from the universities or factories is very much alive in their thinking as well as activities and programmes are run accordingly. Enrolment for graduate studies in liberal arts has been going down as employment in traditional areas such as teaching in schools, colleges and universities is going down whereas *employment opportunities for engineers*, nurses and work with computers are increasing with many persons opting for careers in these fields.

Research work and tenureship

Continuation of employment in prestigious American universities and to a lesser extent, in not too prestigious ones too, is tied to the amount of quality research work generated by the individual during his non-tenureship of employment. Tenureship is a process of according permanency in the teaching job. There are two road blocks to full professorship—one from assistant professorship to associate professorship which should be crossed in three to four years time and the second one from

(*Continued on page 16*)

69th Science Congress

The 69th annual session of the Indian Science Congress Association is being held at Mysore this year.

About the Sectional Presidents whose photographs appear on the cover page......

Prof. M.G.K. Menon, General President, 69th Indian Science Congress, was born on 28th August, 1928 at Mangalore, Karnataka State. After receiving his education in Tamilnadu, Rajasthan and Bombay, he joined the University of Bristol, UK from where he took his Ph.D. degree in 1952. He has honorary doctorates from Jodhpur, Delhi, Sardar Patel (Vallabh Vidyanagar), Allahabad, Roorkee, Banaras Hindu and Jadavpur Universities.

Professor Menon has been recipient of several prestigious scientific and national awards as well as fellowships of various professional bodies. These include: Senior Award of the Royal Commission for the Exhibition of 1851 (1953-55); Shanti Swarup Bhatnagar Award for Physical Sciences of CSIR (1960), Khaitan Medal of Royal Asiatic Society; Durga Prasad Khaitan Memorial Medal of Asiatic Society for the year 1978; and Kerala State Committee for Science & Technology Prize 1979 for distinguished contributions to the development of Science. He was also rewarded Padma Shri in 1961 and Padma Bhushan in 1968.

He is a fellow of Indian Academy of Sciences (President 1974-76); Indian National Science Academy (President 1981-82); Royal Society; Founder Fellow, Maharashtra Academy of Science, Pune; Hon. Fellow, National Academy of Sciences, Allahabad; Hon. Fellow, Institution of Electronics & Telecommunication Engineers; Fellow, Institution of Engineers, India; Hon. Fellow, Aeronautical Society of India; Hon. Fellow, Institution of Surveyors; Hon. Fellow, Maharashtra Association for the Cultivation of Science, Pune; Foreign Hon. Member, American Academy of Arts and Sciences. Very recently he has been made a member of the Pontificial Academy of Sciences, Italy (1981).

Prof. Menon has held the following positions (often on a concurrent basis) relating to the administration and management of major scientific activities: Director, Tata Institute of Fundamental Research (1966-75); Scientific Adviser to the Minister for Defence, Director General, Defence Research and Development Organisation; Secretary, Ministry of Defence for R & D (Aug. 1974—July, 1978); Chairman, Electronics Commission & Secretary to the Government of India, Department of Electronics (Feb. 1971—Dec. 4, 1978); Chairman, Indian Space Research Organisation (Jan. 1972—Jan. 1973); Secretary to the Government of India, Department of Science & Technology (October 1978 till present); Director General, Council of Scientific & Industrial Research (October 1978– May 1981); Secretary to the Government of India, Department of Environment (November 1980—May 1981); Chairman, Commission for Additional Sources of Energy, Government of India (w.e.f. 12th March, 1981 till present).

Prof. Menon has published 76 scientific papers and has delivered 52 Convocation and other named addresses and lectures.

He has been a member/president/vice-chairman/member secretary of a large number of important national and international bodies. Those on which he is currently working are: Member Secretary, Science Advisory Committee to the Cabinet (Since March, 1981); Member, Space Commission, Government of India (Since 1972); Member, Radar and Communication Board, Government of India (Since 1970); Chairman, Governing Council, Indian Institute of Astrophysics, Bangalore (Since 1971); Member, Council of Management, Physical Research Laboratory, Ahmedabad (Since 1963); and Chairman (Since Sept., 1980); Chairman, Board of Trustees, Raman Research Institute, Bangalore (Since 1971); Chairman, Board of Advisers, Vividhlaxi Audyogik Samshodhan Vikas Kendra (VASVIK), Bombay (Since 1975); Member, Council & Court of Indian Institute of Science, Bangalore (Since 1978); Member, Homi Bhabha Fellowships Council, Bombay (Since 1968); Trustee, J.N. Tata Endowment for Higher Education of Indians, Bombay (Since 1969); Life Trustee, India International Centre, New Delhi (Since Oct., 1974); and Vice-President (Since April, 1981); Chairman, Bharat Electronics Limited, Bangalore (Since Sept., 1980); Vice-President, International Union of Pure and Applied Physics (From 1982); President, Indian National Science Academy (Since January, 1981).

Prof. Menon's principal scientific contributions have been to: (1) the development of nuclear emulsion techniques; (2) elucidation of the properties of the strange particles; (3) cosmic ray studies near the geomagnetic equator at high altitudes; (4) deep underground studies in India relating to muons, neutrinos and weak interactions.

Dr. Nirmal Kanti Bhattacharyya, President, Section of Physiology, was born in 1935 at Varanasi in Uttar Pradesh. His father Sri T. Bhattacharyya is a distinguished teacher at Calcutta.

Dr. Bhattacharyya graduated in Veterinary Science with Distinction from the Calcutta University in 1958. He was a merit scholar of the Government of West Bengal and a student of the Bengal Veterinary College, Calcutta. He joined the Indian Veterinary Research Institute as a post-graduate student in Animal Physiology and was awarded the M.V.Sc. degree from the Agra University in 1961. As Research Assistant in the Indian Veterinary Research Institute, he received his initial research training under Dr P.D. Deshpande and Dr D.N. Mullick in the fields of Lipid Biochemistry and Ruminant Digestion respectively. For his pioneering work as the Senior Fellow of the Indian Council of Agricultural Research, New Delhi on the Reticulo-ruminal motility in farm animals, he was awarded the Ph.D. degree in Animal Physiology from the Agra University in 1965. He joined as Assistant Professor of Physiology at the U.P. Agricultural University, Pantnagar in 1964.

Dr. Bhattacharyya was awarded the Commonwealth Scholarship in Physiology in 1966 for Post Doctoral research with Dr B.B. Lloyd and Dr D.J.C. Cunningham at the famous University Laboratory of Physiology, Oxford, England. He made original contribution in the expression of Chemical regulation of respiration in man with the help of an expanded equation and discovered the 'ascending-descending loop' in ventilatory response to progression and retrogression of hypoxia in man. For this work he was awarded the D.Phil. degree of the Oxford University in 1970.

On his return from England, Dr Bhattacharyya took over as Head in the newly created Division of Physiology & Pharmacology at the Indian Veterinary Research Institute, Izatnagar and in addition he shouldered the responsibility of postgraduate teaching in Biochemistry. Through his leadership separate disciplines on Physiology, Pharmacology and Biochemistry started taking shape. In 1974 he took over as Head, Division of Physiology & Climatology though he continued to supervise the programmes in the Division of Pharmacology & Toxicology till 1975. He is a member of the National Committee for International Union of Physiological Sciences (1981-84) of the Indian National Science Academy, New Delhi. Dr. Bhattacharyya has been invited to deliver his talk/Key-Note address in number of National and International Symposia/Conferences/Workshops organised by UNDP, UNESCO, FAO, APHCA and he had chaired several sessions in such scientific meetings.

Dr R. S. Murthy, President, Section of Agricultural Sciences, was born on 12th December 1925 at Hole-Narasipur, Hassan District of Karnataka State. He had his earlier education in Mysore and graduated from Central College, Bangalore in 1945. He passed the M.Sc (Ag) examination in 1947 specialising in Soil Science and Agricultural Chemistry and obtained Ph.D. in Soil Science in 1968 from the Banaras Hindu University. He started his career in the Ministry of Irrigation and Power (erstwhile Central Waterways, Irrigation and Navigation Commission) in 1949 and joined the Indian Agricultural Research Institute in New Delhi as Assistant Soil Survey Officer in 1954. Since then he has served the Institute and the All India Soil and Land Use Survey Organisation in different capacities viz. Assistant Soil Conservation Officer, Soil Correlator, Regional Centre, Bangalore, and Chief Soil Survey Officer at I.A.R.I. He also worked for a brief period as Specialist (Soils) in the National Commission on Agriculture, Government of India in 1971. He is the Founder Director of the National Bureau of Soil Survey and Land Use Planning functioning under the Indian Council of Agricultural Research since August 1976 and is located at Nagpur.

Dr. Murthy's area of specialisation and research is Pedology, Remote Sensing and Land Evaluation. He underwent six months training in Soil Survey and Soil Correlation in the Soil Conservation Service, U.S.D.A., U.S.A. He has nearly 150 scientific publications by way of research papers, monographs, bulletins, etc. He has travelled widely in many countries viz., U.S.A., U.S.S.R., Canada, Europe, Africa, Philippines, Malaysia and Indonesia and participated in several international conferences, seminars and workshops, chairing scientific sessions and presenting papers.

Dr. Murthy is president of the Commonwealth Association of Scientific Agricultural Societies, Canada; Member, International Advisory Panel of the International Soil Museum, the Nehterlands; Member, Steering Committee, International Board for Soil Resources Management, IRRI, Manila (Philippines); Vice-President, Commission V, 12th International Soil Science Con-

gress, India, 1982; past Vice-President, Indian Society of Soil Science; President, Nagpur Chapter, Indian Society of Soil Science; Fellow of the Indian Society of Agricultural Chemists and Member, Indian Science Congress Association.

Dr Murthy is the recipient of the Rafi Ahmed Kidwai Memorial Prize for the biennium 1978-79 for outstanding contribution to agricultural research and Federation of Indian Chamber of Commerce and Industry Award 1980 for outstanding contribution to Research and Development in Life Sciences including Agriculture.

Dr H.G. Sen, President, Section of Medical & Veterinary Sciences, was born on February 1st, 1927 in Jagati Village, Kushtia in undivided Bengal. He had his early education in his native place till he passed Inter science and got admitted into Bengal Veterinary College, Calcutta in 1945. He graduated in Veterinary Science with distinction in 1948 and received his B. Sc. degree from the University of Calcutta in 1950. He was awarded a Research Fellowship by the Indian Council of Agricultural Research, New Delhi to conduct research on experimental typanosomiesis in laboratory animals, the disease popularly known as surra in cattle, at the Indian Veterinary Research Institute, Mukteswar—Kumaon, U.P. and later at Calcutta School of Tropical Medicine under the guidance of late H.N. Ray from 1953-55. He obtained his M.S. degree from the University of Nebraska, Lincoln, USA in 1958 and the Ph. D. degree in Parasitology in 1960 from the same University. He joined as Faculty Staff Member of the University of Pennsylvania, Philadelphia and the position which he held until he joined CIBA Research Laboratories, Basle, Switzerland in 1962. In the following year, he moved to Bombay in their newly opened Research Centre where he worked as the Head of the Division of Parasitology and Scientist-in-Charge, Animal House till he joined Organon (India) Limited, Calcutta, as Technical Adviser in their Research & Development Project last February.

While at CIBA-GEIGY Research Centre, Bombay a major breakthrough in the research came when Dr Sen for the first time succeeded in adapting the human hookworm, *Necator americanus* to the golder hamster, an abnormal host and the retention of parasites by these animals through their adult life. The introduction of his method will provide opportunities for research in many areas related to hookworm disease in man and in particular it opens avenues for discovery of new anthelmintics. Amongst several thousand compounds tested in this new host parasite system, 'Amoscanate' a broad spectrum anthelmintic highly effective in man has been discovered. It is a very significant advance as at last the disease can be studied in the laboratory.

His research activities are mainly confined to experimental chemotherapy in parasitic infections and immunobiology of helminths affecting man.

Prof K.C. Bose, President, Section of Zoology, Entomology & Fisheries, was born on September 17, 1923 at Allahabad. He obtained his M.Sc. degree in Zoology in 1946 from the Allahabad University, and the D. Phil, degree from the same University in 1950 for his research on "The Pineal Organs of Fishes" under the guidance of late Prof. D.R. Bhattacharya. His work on the Pineal organ of fishes is a classic for students and research scholars. He was awarded Empress Victoria Readership and the State Government research scholarship besides numerous scholarly prizes.

He started his teaching career in the Government Agricultural College, Kanpur in the year 1946. In 1947 he joined Allahabad University. In 1951 he went to Rangoon, Burma to organise the P.G. teaching in Zoology. He was the Head of the Department of Zoology, Bihar University during 1953-1960 and Ranchi University during 1960-1980 and was appointed Pro-Vice-Chancellor in June 1980 and later took charge of the Vice-Chancellor, Ranchi University, Ranchi upto 16.11.80.

He made a very significant and singular contribution in organizing the Post-graduate Teaching and Research in Zoology in Burma and Bihar. He has also made valuable contributions towards the growth of Biology teaching and research in the State of Bihar, from the school up to the P.G. and doctoral level, in various capacities and as convenor of different educational bodies at the State and Central Government level besides being the inspiring force in framing the syllabi and curricula of studies at different stages.

Prof. Bose has conducted several seminars and Symposia for the improvement of Biology teaching and research. He has served as an adviser and member of the different Scientific Committees of the University Grants Commission, other Central and State bodies and in a number of Universities. He has conducted a number of summer institutes in Biology for School and College teachers every year between 1965-1970 at Ranchi. As Director Hindi Translation Cell, he has also edited a number of standard scientific publications in Hindi.

Besides, being a fellow of the

National Academy of Science, Zoological Society of India, Zoological Society of London Prof. Bose is member and fellow of a number of other national and international Scientific bodies. He is associated with the Editorial Boards of several Scientific journals.

Prof. Bose has published more than one hundred research papers in reputed National and International journals in Endocrinology, Ecology, Reproductive biology and Ichtyology. He is currently engaged in research in Histochemistry and Environmental Biology. He has guided successfully a good number of Research Scholars.

Dr T.N. Khoshoo, President, Section of Botany, was born on April 7, 1927 at Srinagar, and obtained his M.Sc. (Hons. School) degree in Botany from the Panjab University, Lahore in 1947 and subsequently took his Ph..D. degree from Panjab University, Chandigarh.

He started his career as a Lecturer in Botany at Panjab University from 1948 to 1962 and then shifted to the Jammu and Kashmir University, Srinagar (Kashmir) where he was till 1964 the Head of the Postgraduate Department of Botany. He joined NBRI (the then National Botanic Gardens), Lucknow as Assistant Director in June 1964, was promoted as Deputy Director in 1974 and became its Director in May 1976.

Dr Khoshoo's research interest has been cytogenetics as related to plant evolution and improvement. During 1948-55, he unravelled the cytogenetic architecture of softwoods (conifers) and proposed new hypotheses to explain the nature, extent and causes of different genetic mechanisms underlying the evolutionary diversification of this group of plants. The value of this work in forest tree breeding has been widely recognized. His experimental evolutionary work (1955-1964) on weeds, vegetables, minor fruits and medicinal plants and his investigations of the evolutionary dynamics and statics of *Sisymbrium irio*, a polymorphic weed, are noteworthy.. In 1963 he discovered, for the first time, an unique all-telocentric karyotype in *Welwitschia mirabilis*, morphologically the only species of its kind in the entire plant kingdom, living as well as fossil.

At NBRI, Dr. T.N. Khoshoo has organized a school of research in experimental evolution and improvement of non-agricultural cultivated plants, particularly ornamental and subsidiary food plants. The information on genetic evolutionary race histories, generated by the experimental analysis of variation and evolution of cultigens, has been used for experimental synthesis of several new and novel cultivars, many of which have been registered and released, of ornamental plants like bougainvillea, antirrhinum, marigold, amaranthus, verbena, etc. This pioneering work has also helped in the circumscription of genepools, delineation of centres of origin/diversity and study of the problems, procedures and prospects of taxonomy of cultivated plants.

Dr. Khoshoo's leadership in restructuring research and development plans of NBRI has brought the Institute into the main stream of the CSIR and at par with its major laboratories, resulting in elevation of the NBG in 1978 to the level of a National Institute which has now become a focal point of R and D on under-utilized/non-traditional economic plants combining excellence with relevance in research programmes.

Dr. Khoshoo is a Fellow of the Indian National Science Academy (New Delhi), Indian Academy of Science (Bangalore) and Indian Society of Genetics and Plant Breeding (New Delhi). He has been awarded Rafi Ahmad Kidwai Prize and Medal by ICAR for his outstanding contribution in Indian horticulture. He is also the recipient of Prince of Wales Gold Medal for high performance in biology. He is National Lecturer of University Grants Commission for 1981.

Dr Khoshoo has to his credit 150 research papers and has edited two books. A large number of students have obtained their Ph.D. degree under his supervision and many of them are established cytogeneticists in India and abroad.

Professor S. Aditya, President, Section of Chemistry, was born in 1925 at Laheriasarai, Darbhanga and had his early education in Bihar and Orissa. He had his B.Sc. (Hons.) from the Utkal University in 1945 and M.Sc. from the Calcutta University in 1947. During his M.Sc. stage he was initiated into research by Professor B.N. Ghosh. In 1948, he joined the Chemistry Department of Ravenshaw College, Cuttack as a Lecturer. While working as a teacher he carried out research on the 'Behaviour of Uni-bivalent electrolyte in solution' under the inspiring guidance of Prof. B. Prasad. He was awarded Ph.D. degree of the Utkal University in February, 1952.

In 1953 Dr. Aditya went to the University of Wisconsin, Madison, USA on a Fulbright Fellowship to do post-doctoral research with Prof. J.E. Willard. While studying the neutron activated reactions in hydrocarbon solution, he got interested in determining the activation energy of diffusion controlled reaction which he did by following the recombination of iodine atoms in solution at different temperatures by flash photolysis.

In Sept. 1955, Dr. Aditya returned to Ravenshaw College. In 1957-58 he spent a year at National Research Council, Ottawa, Canada, where he worked on Photooxidation problems with the Late Dr E.W.R. Steacie, one of the doyens in the field of Photochemistry. In 1960, Dr Aditya joined the Applied Chemistry Department, Calcutta University as a Reader in Physical Chemistry and in 1971 he was appointed a Professor. In 1964 Dr Aditya visited USA and studied the reaction of free readicals at 77a° by E.S.R. technique. He collaborated in 1977 with Professor Willard in the studies on the growth and decay properties of H and D atoms produced by photolysis of HI, DI and HBR in 3 MP-d_{14} glass providing evidence for tunnelling abstraction of D from C-D bonds by H. He attended a number of International Conferences and recently the 3rd World Hydrogen Energy Conference in Tokyo, Japan, in June 1980.

Dr. Aditya's research interest is in Solution Chemistry, thermodynamics of ions in solution and in the field of photochemistry and photoelectrochemistry. His laboratory is one of the few laboratories in India with facilities for microcalorimetric measurements and flash-photolysis work. Both the calorimeter and the flash-photolysis equipment have been fabricated in the laboratory. He has about 90 research publications. 15 students have been awarded Ph.D. degree under his guidance and one D.Sc. from his laboratory. Dr. Aditya is fellow of various scientific soieties, Indian Chemical Society, Institution of Chemists (India), Indian Photobiology Society, Society for Advancement of Electro Chemical Science & Technology, Kineticists Association of India, Magenetic Resonance Spectroscopy Association, Royal Chemical Society (London), member of Society of Sigma XI (USA). He held the positions of Hony. Secretary, Hony. Treasurer, Hony. Editor and Vice-President of the Indian Chemical Society.

Prof. S.N. Singh, President, Section of Statistics, was born on July 21, 1924 in a village, in Varanasi (U.P.). He obtained his M.A. (Mathematics) from Banaras Hindu University in 1949 in First class standing First in order of merit. He took an advanced postgraduate training in Statistics from the Indian Statistical Institute, Calcutta during 1949-51. He was offered fellowship from the University of California, Berkeley, U.S.A. for higher studies in 1958. At the same time he was also selected a Fellow of the Population Council, U.S.A. for doing research relating to population problems. He worked there with world famous Statistician Prof. J. Neyman and Demographer Prof. K. Davis and obtained his Ph.D. (Statistics) in the year 1961.

Dr Singh started his teaching carrier as a Lecturer in Statistics in 1951 in Banaras Hindu University and served the University in various capacities. At present he is Professor of Statistics and Head of the Department of Mathematics. He was Dean, Faculty of Science during 1979-81 and Vice-Chairman of the Organizing Committee of the 68th Session of Indian Science Congress Association held at Varanasi.

Prof. Singh's main field of interest is Mathematical Demography. He has published around 100 research papers in journals both in India and abroad. Fifteen students have obtained Ph.D. degrees under his guidance. With the financial assistance first from Population Council, U.S.A. and later from U.G.C., he has established a Demographic Research Centre (now named as Centre for Population Studies) at B.H.U. which is internationally known for the research in Mathematical Dmography. He has conducted a number of research projects with the financial support from U.G.C., I.C.S.S.R. and other organisations.

Prof. Singh is a member of the International Union for the Scientific Study of Population and several other associations. He has attended a number of National and International Seminars relating to Mathematics, Statistics, Planning and Population problems. He was invited to deliver special lectures by a number of Universities in U.S.A. and Canada. Besides, he worked as a Faculty member at Pennsylvania State University, U.S.A. for the year 1961-62.

Prof. T.R. Anantharaman, President, Section of Engineering Sciences, was born in 1927. He obtained the B.Sc. (Hons.) degree in Chemistry from Madras University in 1947 and the D.I.I.Sc. (Metallurgy) as well as M.Sc. (Metallurgy) at the Indian Institute of Science in 1950 and 1951 respectively. In recognition of his outstanding educational career during which *he had always obtained the first rank*, he was awarded the coveted Rhodes Scholarship for Doctorate Research at the Oxford University, which he completed in 1954.

Professor Anantharaman's professional carrer began with his short-term assignment as a Metallurgical Observer in Australian Steel Plants in 1949. After leaving Oxford he was a Post-Doctoral Research Fellow and a Research Metallurgist in West Germany during 1954-56, Assistant Professor of Metallurgy at the Indian Institute of Science, Bangalore, from 1956-62 and Professor and Head of the Department of Metallurgical Engineering at Banaras Hindu University from 1962-77. He was elevated to the high office of Rector of Banaras Hindu University in 1977, which position he held for a year. In 1981 he took over as Director of the University's Institute of Technology.

Professor Anantharaman's monumental contribution has been the building up of metallurgy, teaching and research at Banaras Hindu University. Thanks largely to his leadership characterized by devotion and distinction, the BHU Department of Metallurgical Engineering today enjoys a high international reputation. It was recognized by the University Grants Commission as a CENTRE OF ADVANCED STUDY IN METALLURGY in 1979 and Professor Anantharaman has been named its Programme Coordinator. This is the first instance of an *Engineering* Department getting this recognition in our country.

Professor Anantharaman has travelled and lectured abroad extensively. He served as Visiting Professor in West Germany in 1960, 1964, 1969, 1973 and in Belgium in 1970. Under the UGC-USAID Programme he visited and lectured in 1965 at several Universities and research establishments in USA and in 1972 he visited USSR as a Member of Scientific Delegation of the Indian National Science Academy. Two prestigious missions, the first to chair a Session at the Second International Conference on "Rapidly Quenched Metals" and the second to participate as a special invitee at a Gordon Research Conference in Physical Metallurgy, took him to USA in 1975 and 1976 respectively. On an invitation from DAAD, he was a Visitor to West German Council. He visited and lectured at British Universities in 1969, 1978 and 1981. During his visit abroad in 1978 he lectured in France, U.S.A. and Canada and also participated at the Twelfth Commonwealth Universities Congress at Vancouver, Canada as a representative of the Banaras Hindu University. The first metallurgist to be named a Jawaharlal Nehru Fellow (during 1979-81), Professor Anantharaman went on lecture tours to several European countries in the summers of 1980 and 1981. In August/September 1981 he was a Visitor to Japan under the Exchange Programme between the Indian National Science Academy and the Japanese Society for the Promotion of Science.

Appreciation has come to Professor Anantharaman in the form of several awards: Kamani Gold Medal of the Indian Institute of Metals in 1960; National Metallurgists' Day Award of the Union Ministry of Steel and Mines in 1964; Shanti Swarup Bhatnagar Prize of the CSIR for Engineering Sciences in 1967; the First Annual Award to an individual Scientist by FICCI in 1972; National Fellowship of the UGC in 1972; Homi J. Bhabha Award for Applied Sciences by the UGC Hari Om Trust in 1974; the VASVIK Award for contributions to the advancement of Metallurgical Sciences in India in 1978; the Hony. Membership of the Indian Institute of Metals in 1979; the Hony. Membership of Deutsche Gasellschaft fuer Metallkunde (German Society for Metals) in 1981 and the Bhatnagar Medal for 1982 of the Indian National Science Academy.

Prof. V. Singh, President, Section of Mathematics, was born in February 1928 in a village in Kanpur district of Uttar Pradesh. He passed the M.Sc. examination of Agra University in 1948 and was awarded University Gold Medal for standing First in First class. He had also been awarded University Gold Medal for proficiency in Mathematics among the B.A./B.Sc. students in 1946. He obtained the Ph.D. degree from University of Delhi in 1954 under the guidance of late Dr R.S. Verma. He spent six years in the United States of America and did post-doctoral research at Washington University (St. Louis, Mo), Carnegie Institute of Technology (Pittsburgh, Pa), Stanford University (California) and Harvard Univesity (Cambridge, Mass). He was closely associated with Prof. W.J. Thron, (late) Prof. Z. Nehari, Prof. M. Schiffer and Prof. L.V. Ahlfors. His visit to U.S.A. had been sponsored under the Fullbright Scheme.

He started his teaching career from D.A.V. College, Kanpur as Head, Department of Mathematics in 1957. In 1963 he was appointed Reader in Mathematics at University of Delhi and in 1964 he was appointed Professor and Head, Department of Mathematics, Punjabi University, Patiala.

He has contributed original research papers in various branches of Theory of Functions such as Laplace Transform, Sets of Polynomials, Analytic theory of continued Fractions and Conformal mapping. A number of students have obtained Ph.D. degree under his guidance and have earned a reputation internationally for their work on Univalent Functions.

In 1976 he was invited as Visiting Professor by University of Dortmund (West Germany) and in 1978 he was awarded the Royal Society and Nuffield Foundation grant to do research at Imperial College, London. Here he was closely associated with Prof. W.K. Hayman and Prof. J. Clunie. His biography has been included in the books Men of Eminence and International WHO's WHO. He has been elected Fellow of the National Academy of Science, India.

Prof C. Ramasastry, President, Section of Physics, was born on 27th June 1923 in a hamlet, Markondapadu, in Andhra Pradesh. Son of a Village School Teacher. Educated in a village Middle School, in a Taluka Town High School and the Hindu College at the District town of Masulipatnam, all in the Krishna District, Andhra Pradesh. Graduated from the Andhra University, Waltair, B.Sc. (Hons) Physics (1944), M.Sc. Applied Physics (1945) D.Sc. Physics (1949).

Was awarded the I.C.I. (India) Research Fellowship from 1949-52 by the then National Institute of Sciences of India (present Indian National Science Academy). Worked with Professor John Bardeen at the University of Illinois, Urbana, U.S.A. in 1955 in Semiconductor Physics.

Has interests in Semiconductor and Solid State Electronics, Spectroscopy, Microwaves, Electron Spin Resonance and Instrumentation. Has Research Publications in International Journals including the Proceedings of the Royal Society, London. Guided research leading to Ph.D. Degrees on several aspects of Defect Solid State.

Was on the teaching staff of the Andhra University (1945-52), of the Indian Institute of Technology, Kharagpur (1952-59). Later, at the Indian Institute of Technology, Madras, since 1959 and presently as Senior Professor of Physics.

Member of several learned societies of India. Was Member Secretary of the National Committee for International Union of Pure and Applied Physics for six years 1972-78 and represented India at the IUPAP General Assembly held at Munich in 1975.

Dr. G.W. Chiplonkar, President, Section of Geology and Geography, was born in Poona on 12th June 1907, passed the M.Sc. examination in 1933 from the Benares Hindu University, when he had his first research assignment in the Tertiaries of western Sind. In 1939 he was awarded the D.Sc. degree by the Benares Hindu University for his work on Palaeontology and Stratigraphy of the Bagh Beds of Narmada valley. After working as a Lecturer and then Assistant Professor of Geology at the Benares Hindu University from 1936 to 1946, he joined the University of Saugor as Reader and Head of the Department of Geology in 1946, where he organised the Department of Geology and built up an extensive Museum. In 1965 he joined the Maharashtra Association for the Cultivation of Science, Poona, where he established the Department of Geology and Palaeontology as its Head and Honorary Professor. Here he has built up a school of Palaeontology, especially in Invertebrate Palaeontology. He has contributed a series of papers dealing with Stratigraphy, Palaeontology and basinal relations of the Bagh Beds, the Wadhwan Formation of Kathiawar and the Upper Cretaceous rock formations of South India. From 1965 to 1976 he delivered lectures in Invertebrate Palaeontology and Indian Stratigraphy to postgaduate classes at the University of Poona as a contributory teacher on behalf of the Maharashtra Association for the Cultivation of Science.

Besides starting as a project, revision of the South Indian Upper Cretaceous fauna, he has initiated systematic study of trace fossils from Indian rock formations and contributed several papers on them. In "First Twelve Years of Palichnology in India" as his Presidential Address to the 3rd Indian Geological Congress held in Poona in 1980, he has taken a comprehensive review of the work done in this new line of study in India.

From 1957 to 1959 he was Recorder of the Section of Geology and Geography of the Indian Science Congress Association.

Dr N.K. Kadetotad, President, Section of Anthropology and Archaeology, was born in 1932 at Bandihal in Raichur District of Karnataka State. In his primary school at Naregal, he succeeded in the Government merit scholarship examination. Therefore, he came to Dharwad to pursue his studies. He was matriculated from R.L.S. High School, Dharwad as a Government Merit Scholar. He graduated from Karnatak College, Dharwad in 1952, in the degree of B.A. (Hons) with economics, sociology and political science. He studied for his post-graduate degree in Karnatak University in the subjects of economics and sociology. He received his M.A. degree from Karnatak University, Dharwad in 1958. He got the degree of Sahitya Ratna from Hindu University Allahabad which was considered as an University of National importance. He got the Research Scholarship in Sociology and Anthropology for doing Ph.D. in Karnatak University during 1960-63. He worked under Dr K. Ishwaran, Professor of Sociology and Anthropology in the York University, Toronto Canada, and got his Ph.D. in Anthropology on the subject "Religion and Society among the Harijans". He joined the Post-graduate Department of Anthropology as an Investigator in 1963. After serving as an Investigator for thirteen years, he was upgraded as a Lecturer in Anthropology in 1976.

His thesis—Religion and Society among the Harijans was published in 1977 and for this distinguished work and other works in the field of Anthropology, he was selected as Fel-

low of the Explorers Club, New York (U.S.A.), the membership of which comprises a wide range of eminent explorers, scientists and selected group of distinguished men noteworthy for their contributions to world knowledge and exploration. *Included in the current roster of* explorers Club, New York, are such notables as Neil Armstrong, Sir Admond Hillary and several Nobel laureates and many distinguished members throughout the world.

His book "Family and Marriage—a comparative study of two communities in Dharwad is published in 1979 from Delhi. This research work was admired by Sociologists, Anthropologists and Social workers.

Prof. S. Narayana Rao, President, Section of Psychology and Educational Sciences, was born in Ichapuram, Srikakulam District of Andhra Pradesh on 2-12-1928. He had his school education in Ichapuram and his undergraduate education at M.R. College, Parlakemidi and Khallikote College, Berhampur. He obtained his first degree from Utkal University in 1949. He took his Master's Degree in Psychology from Banaras Hindu University in 1951 and Master's Degree in Philosophy in 1953 and B.Ed. Degree from the University of Mysore. He joined the Annamalai University as Lecturer in 1953. With the founding of Sri Venkateswara University Tirupati, he joined it as Lecturer in 1955. He taught Postgraduate classes for 28 years and has been actively engaged in research. He obtained his Ph.D. Degree in Educational Psychology, Counselling Psychology in 1963. He visited U.S.A., U.K., France, Germany and Switzerland. As Fulbright scholar he was at the Students Guidance Bureau, University of Minnesota, Minneapolis. Apart from papers presented at Seminars, Workshops and Congresses, he has published 40 research papers and 6 books.

Prof Rao has wide professional interests and has been actively involved in professional and academic activities. He was Member, Psychology Panel, UGC 1975-77, Member of National Test Commission (IPA) and Member of National Test Library, NCERT. He is very closely associated with several universities and different professional bodies. He was a member of ISCA from 1955, Secretary, Indian Psychological Association (IPA) 1977-79, President Indian Academy of Applied Psychology (IAAP) 1976-79, Secretary, National Vocational and Educational Guidance Association (NVEGA) from 1976 onwards. He is currently the Executive Secretary, Centre for Studies in Human and Social Development, S.V. University, Tirupati and Chief, Employment Information and Guidance Bureau, S.V. University.

UNIVERSITY NEWS

Wishes

Its Readers

A

HAPPY NEW YEAR

Social relevance of education to society

Convocation

In our society which some people say is changing very slowly, the rate and direction of change have no historical parallel. The outside world is in the same state of flux. What appeared to be certain and enduring only a generation ago, now seems to have been discarded into the dustbin of history. But values, attitudes and behaviour patterns which were appropriate to an unchanging society persist and block the way as society resolves to change and move ahead. Much of what we would like to discard or modify, persists and exerts a pull on our thought and action. It is this conflict between the external needs of change and the inner resistance to it that has made the contemporary period an age of tension and turmoil. The tension can be got over only by creating in the society a correct and adequate perception of change and by providing the society with appropriate values, attitudes and skills with which to bring about that change.

Education alone can perform this difficult yet necessary task. It is at once our principal means of preservation and change. Traditionally, society has looked upon education as a process by which to conserve, enrich and transmit to succeeding generations the accumulated knowledge, skills, beliefs and values on which its cohesion and preservation depend.

In more recent times, and especially in the developing world, education has increasingly come to be looked upon as one of the most potent instruments of modernization. As James Coleman has said, "Once regarded as an essentially conservative, culture-preserving culture-transmitting institution, the educational system now tends to be viewed as the master determinant of all aspects of change".

Society has probably changed more in the past three decades than it did the previous three centuries, and this is equally true of both the developed and the developing world. It is this continuing and often profound social change and the salient role of education in it that have brought to the fore the question of social relevance of education to society.

There are at least three ways in which education has direct relevance to society. First is the way it produces suitably trained people in required numbers to man the myriad institutions through which society lives and grows. This may be called its leadership recruitment function.

The second is the contribution education makes to economic growth, both in terms of skills and attitudes. Everywhere and particularly in the developing countries the belief in some kind of a casual relationship between education and long-term economic development has become almost an article of faith.

The rulers of the new nations are relying increasingly on considerations of economic development to justify increasing state support for education. Underlying this emphasis on economic development is another article of faith, namely that rapid economic development is the minimum indispensable requisite of democratic political development. This may be called the developmental function of education.

The third and equally important role of education relates to its socialization (including political socialization) function. Socialization refers to that process by which individuals acquire values, attitudes and feelings towards the social system and towards their distinctive role in it. Every social system is liked upon its own unique value system and seeks to perpetuate itself by creating an appropriate ideological support—structure through shared beliefs and values in the society. Education is a principal agency in this process, which begins at birth and continues through both formal and non-formal systems well into adulthood.

Today it is possible for a person to go through school or college or university and emerge well trained but essentially untouched by education. Now, there is more in education than mere acquisition of knowledge or skills. That something more is the creative function of transmuting knowledge into wisdom. As Walter Lippman said ."the capacity to judge rightly in a choice of both means and ends is the hallmark of a liberal, as distinguished from a utilitarian or vocational education". This capacity to make a right choice of both ends and means is a moral capacity and the quality of education and indeed the society itself is to be judged from the number of individuals it produces who have this capacity and the courage to stand up and speak against the adoption of wrong ends or means. Only such individuals would be able to act as the backbone of an upright society which refuses to be servile or pliant.

Judged from this point of view, one has regretfully to note the isolation, even alienation, of the Indian intellectuals from the society around them and their continuing failure to make any large and lasting impact on it. Unlike the Western intellectual tradition which developed in response to challenges of social reality, the modern Indian intellectual tradition is an exotic growth without roots in an authentic Indian social experience. The wall of silence that separates the intellectual community from the society at large can be broken down and communication links established only by getting the Indian intellectuals and other educated Indians deeply involved not only in understanding but also in solving national problems Only by bringing education face to face with real life situations will we succeed in making it socially relevant, and therefore credible. Unfortunately, as Dr. Zakir Hussain once said, "our whole system is a vast and complicated system of evasion of social responsibility".

Thus, a search for social relevance would result in an orienting the educational system in at least the following three ways:

(1) To give every student a course in general education integrating science and technology on the one hand and humanities and social sciences on the other so that he would be able to comprehend the complex inter-relationship between the two. This is absolutely necessary if the problem of 'the two cultures', disparate and antagonistic, is to be avoided. Such a combined course alone would be able to sensitise the student mind to the possibilities of science and technology and to the nature of the social problems around him.

(2) Educational stiategies both at school and college must be geared to economic development in general and rural development in particular.

(3) The gap between the 'world of study' and the 'world of work' must be ridged by integrating education to productivity through the provision of applied courses and through action-oriented learning.

Thus it will be seen that education is centrally relevant to society in as much as it provides a critical input to the process of comprehending as well as mastering social change.

[*Excerpts from the convocation address delivered by Prof. Ram Joshi, Vice-Chancellor, University of Bombay, at the National Defence Academy.*]

Higher Education in the USA

(*Contd. from page 6*)

associate professorship which happens in a little longer period of time. The individuals are being evaluated all the time. A tenured professor cannot normally be removed from his job unless there is something strongly against him. A turned professorship in a run-of the-mill university does not mean much in terms of his calibre or ingenuity in research activities.

A large amount of funds for research activities in well known American universities come from various Government agencies and business corporations. Necessarily these funds are result orientated. Generally no funds would be available to carry out research work if that work is repetition of another person's work. It would be available only for extension of previously explored work or if it is necessary to clear up some unclear points. The university faculty members as well as graduate students are heavily engaged in sponsored research work. The prestige of the university as well as the continuation of flow of funds is tied to their timely completion. The faculty, of necessity, have to spend much of their time and efforts on research work delegating a good part of teaching to teaching assistants for grading papers, taking quizzes, conducting exams and occasional teaching when the professor is unavailable. On the other hand, if the professor gets heavily involved in the area of teaching without correspondingly doing enough in research, he may land himself in trouble. A very well meaning, brilliant associate professor lost his job in a university for that exact the same reason. He must have mended his ways, he is now the dean of engineering in another university.

Indian students in American universities

American university campuses exude an atmosphere of growth and vialty. This is particularly so in the top ranking universities. An indomitable spirit, in the pursuit of the unknown, the unachievable pervades the atmosphere in the super giants among them. Sooner or later the spirit catches on among the very gifted of the Indian students—some of whom have achieved high levels of excellence and recognition in their professional fields.

There is an awareness in educated circles that there are excellent educational and research institutions in India. The top graduates of Indian Institutes of Technology and Indian Institute of Science, Bangalore, have not difficulty getting admitted to the very prestigious American universities with financial assistance. These students invariably do very well and help enhance the reputation of the educational institutions of India. A very young research scholar from Indian Institute of Science, Bangalore, received a most distinguished scholar award for his outstanding work in communication theory. Incidentally, most of his work was completed while he was in the Institute in India.

Being educationally groomed in an environment that is conducive to the development of a spirit of creativity and dynamism in attitude and action, many find it difficult to adjust to conditions prevailing in the home country. Profusion of foreign students, Indian and others, who decide to stay on in the host country after completion of higher education, bear testimony to that general feeling. ☐

[*Courtesy* : The Assam Tribune]

Campus News

Tamil varsity to acquire computers for research

The Tamil University recently set up at Thanjavur has decided to acquire two mini-computers costing about Rs 27 lakhs, for language research. Dr V.I. Subramoniam, Vice-Chancellor of the University while making this announcement said that computer-based research in automatic translation, technical terminology, bilingual dictionary making etc. could vastly narrow down language differences and multiplicity and also promote national integration. Even a single language like Tamil had different scripts, and with a computer one script could be converted to another, as had been done in Japan. Different language users could solve the problem of scripts by suitable programming of the computer. Dr Subramoniam said as the Tamil University was a pioneering institution for regional languages in the country, computer research was very essential to maintain international standards in literature. He mentioned that the University would soon set up a library which would have books and journals with language work in English, French, Russian and Japanese. Where multiplicity of languages hampered development and communication, automatic translation was the only remedy. Work in this field was undertaken even in developed countries like the U.S. and Russia which did not face this problem. In India research on automatic translation was a necessity for national growth and development. While the Tata Institute of Fundamental Research, and the Indian Institute of Science, Bangalore, had made a beginning in automatic translation, with a certain degree of success, serious attempts would be made by the Tamil University.

Rapport with industry suggested

Dr B. Ramachandra Rao, Vice-Chairman of the University Grants Commission, said in Madras that science and technology in India were not properly dovetailed unlike in Western countries. He was laying the foundation stone of the girls hostel and museum building for the School of Architecture and Planning of the Perarignar Anna University of Technology (PAUT). Dr. Rao said the number of engineering graduates must be linked with Plan needs and the lack of rapport between universities and industry must be rectified. Incentives should be given to first rankers to make them take up teaching and research. Otherwise the best students at the bachelor's degree level would drift to industries and only the second best would come to the teaching profession. The university has recently received a grant of Rs 25 crores for its development programmes.

Dr. V.C. Kulandaiswamy, Vice-Chancellor, PAUT, said the School of Architecture and Planning, deserved to be considered for development into a centre of national standing with financial assistance from the UGC and Education Ministry.

Poddar pleads for funds for engineering colleges

Dr R.K. Poddar, Vice-Chancellor, Calcutta University, has urged the authorities concerned to provide more funds for upgrading the existing engineering colleges, including the Bengal Engineering College, Shibpur. He felt it was unfortunate that most of the graduates of such engineering institutions go abroad because they found their stay in India not very rewarding. Dr Poddar inaugurated a four-day seminar on the occasion of 125th anniversary of the college. He hoped that the seminar would suggest ways for strengthening the engineering education. Dr S. Varadarajan, Chairman of Engineers India Ltd., said that the college had achieved great distinction in the academic field and made outstanding contributions to development of engineering and technology. Engineering graduates from this college had secured top positions all over the country. He hoped that they would make further progress in the years to come. The research and development programmes of the college needed adequate financial support from the authorities.

More funds for adult education needed

Dr Sukhdev Singh, Vice-Chancellor of the Punjab Agricultural University, said in Ludhiana that it was unfortunate that the majority of the population was still illiterate and there was only a fraction that could be called literates. In the wake of scientific advancement literate persons could better contribute in the development of agriculture. He further said that literature for neoliterates should be produced in simple and understandable language with rural background. Dr Sukhdev Singh further said that the folk literature including *kissas* and recitation of *bani* which had maintained functional literacy in the rural areas should be revived. The literature produced for neo-literates should be an embodiment of moral values and entertainment, he added.

Mr Manmohan Singh, Deputy Director of Public Instructions, Punjab who is also the Incharge of the Adult Education Programme in the State, said that 3,000 centres of adult education were functioning in the state. He further said that budget allocation for this programme was only Rs 84 lacs while Rs 200 crores were being spent annually on the education of 32 lakh students in the state. He urged the State Government to raise the remuneration of part-time teachers from Rs 75 to Rs 200 per month.

Quality literature for neo-literates needed

Inaugurating a four-day workshop on 'Producing Literature suitable for Rural Neo-literates, Dr K.S. Nandpuri, Director of Extension Education of the Punjab Agricultural University, said that very few books, suitable for the rural neo-literates, were available in the market. He told that hardly 10 per cent of the rural population read any book. Dr Nandpuri suggested that suitable books based on rural environment should be written in easily understandable language. He urged the State Government to encourage those writers who produced literature useful for the rural readers. The workshop has been organised by the Department of Extension Education of the PAU in collaboration with the Regional Resource Centre, Chandigarh and Punjab Society of Adult Education.

Conference on the role of women in education of young people

Experts from 21 countries met in New Delhi for five days from December 7, 1981 to discuss the role of women in education of young people for peace, mutual understanding and respect for human rights. The experts, most of them educationists working in universities, focussed their attention on the role of women as mothers, teachers and members of society in the achievement of the task set before the conference.

The conference was hosted by the University Grants Commission and sponsored by UNESCO.

The Prime Minister, Smt. Indira Gandhi, who inaugurated the conference, said that the responsibility to work for peace lies on all citizens. The campaign for peace must be waged in all groupings.

Mrs Gandhi said that the basic cause of conflict is some kind of fear and insecurity which leads to aggressive or self-righteous tendencies. A person who is well adjusted and at peace with himself or herself will be more tolerant towards others.

The Prime Minister pointed that contemporary society seems to take violence, even when it is quite senseless, for granted. "Its steady increase in towns and villages in almost all countries is a cause for great concern. Crimes against women have also grown. Parents and teachers' groups, along with other concerned citizens and public and governmental bodies, must get together to fight this evil," she exhorted.

The Chairman, UGC, Dr. (Mrs) Madhuri R. Shah, who presided over the conference said that human decency is a universal quality. "We believe that there is only one war to be waged in the name of human decency and that is the war against all the common enemies of man-hunger, disease, poverty, ignorance, crime and failure. We believe that every child should have the chance to grow up in an atmosphere of faith, not of fear," she said.

In her valedictory address to the conference, Shrimati Sheila Kaul, Minister of State for Education and Social Welfare, pointed out that women have those

Prime Minister, Smt. Indra Gandhi, inaugurating a conference on the role of women in education of young people for peace, mutual understanding and respect for human rights in New Delhi.

capacities or qualities, which can transform the face of this planet. The development of these qualities lies on the root of all programmes for transforming the minds of men and women which will usher in international economic justice, mutual understanding and peace.

The Education Minister added, "the egalitarian urge that has manifested itself powerfully in the last few decades has to find expression in changes in the social systems. These changes must include and also be spearheaded by women who are half of humanity."

Iqbal Narain hopeful about merit promotions

Dr Iqbal Narain, Vice-Chancellor of the Banaras Hindu University said in Varanasi that merit promotion scheme for university teachers will be implemented soon. He had detailed discussions with the University Grants Commission and the scheme has been finalised and sent to finance department for necessary sanction. Under the scheme senior members who are stagnant since the last 15 years will be benefitted. The Vice-Chancellor also announced that the University Grants Commission had sanctioned Rs 1.28 crore for development and the expansion of social sciences and humanities departments. He said central library building will be expanded at a cost of Rs 30 lakh. A separate building will also be constructed for the students of the library sciences. The UGC has accorded permission for the construction of a new hostel for 250 students.

Railways modify concession for athletes

The Union Ministry of Railways has withdrawn the railway concession available to the sportsmen. Now onward sportsmen taking part in national or international championships alone will be eligible for concessional fares for travel within the country. Rule No. 101 of the Indian Railways Concessions Act has been amended and new provisions have been added. Even those eligible for concessional fares will only get 25% cut and that too only if the distance travelled is more than 300 kms. Sports organisations feel that the introduction of these new provisions would slacken the movement of the athletes inside the country.

Bihar Varsity Board meets in Ranchi

A meeting of the Bihar Inter-University Board was held in Ranchi under the presidentship of Dr Ramavtar Shukla. A draft regarding the formation of a college development council and the functions to be signed to the coordinator was discussed and approved. It was considered necessary that the State Government should recommend to the Chancellor necessary directives for implementing the revised statutes. The meeting also decided to continue the provisions of internal assessment in the MBBS course in the State universities. The question of reservation of posts for weaker Sections of society for officers and non-teaching staff in all the universities and colleges was also discussed but no final decision in the matter could be taken.

New courses in Osmania

The Academic Council of Osmania University at its meeting held at Hyderabad approved the creation of a separate faculty of oriental languages. It also agreed to the starting of a two-year part-time diploma in theatre art and one year diploma in Urdu. The Council also resolved to institute a special Ph.D. programme of Russian language in the department of Russian.

Maharashtra to have uniform legislation in agrl. varsities

A Bill seeking to bring uniformity in the administrative and academic functioning of the four agricultural universities in Maharashtra has been referred to a joint committee of both Houses of the State Legislature. The Bill was introduced in the Assembly recently.

Top neurosurgeons *to attend meet*

On the occasion of the golden jubilee celebrations of the All-India Institute of Medical Sciences, New Delhi, a four-day symposium was organised by the Department of Neuro Surgery. Neurosurgeons from Britain, West Germany and Holland attended the

RESEARCH IN PROGRESS

With the current issue of UNIVERSITY NEWS we propose to launch this new column. This will report the registrations for doctoral degrees at the Indian Universities during the last month. Just as under the 'Theses of the Month' the first issue of every month will report registrations in the Social Sciences and Humanities while the second issue will report registrations in the Physical Sciences and Biological Sciences. The order of information in each entry will be the name of the scholar, topic approved for research, name of the degree, if other than Ph.D., name of the university with which registered and the name and complete address of the guide. This column, we believe, will be found to be of value by our esteemed readers and research scholars as it will facilitate contact between different people working in the same or similar areas. We would await your reactions and welcome your suggestions to improve this service.

—Editor

symposium. The focus of discussion was on the use of laser for brain surgery and other current neurosurgical methods.

Dr. A.K. Banerji, Professor of Neurosurgery of the Institute said that the introduction of microscopes and lasers has revolutionised brain surgery. Although microsurgery is being done in some centres in India, laser is yet to be introduced as a total for brain surgery. Besides microsurgery and laser surgery, the symposium discussed the latest techniques to deal with head injuries, pain associated with face and tumours of the pituitary gland which constitute one-tenth of all brain tumour cases admitted at AIIMS.

Medical education review committee to consider future projects

The medical education review committee appointed by the union health ministry is evolving realistic projections of medical manpower requirements during the current plan and afterwards. The committee, which began functioning in September, is expected to submit its report on some of its terms of reference before March 1982. The committee will review the entire medical education system and suggest reform measures in the context of the national commitment to attain the goal of "health for all by 2000 ad." It was also stated that the investment loss suffered by the government be cause of the migration of physicians and nurses could not be checked and needed urgent assessment.

The recommendations of the Review Committee for the All Institute of Medical Sciences under the chairmanship of Dr Shantilal Mehta have already been finalised. It has also made suggestions in regard to Dr. Rajendra Prasad Centre for Ophthalmic Sciences and the Postgraduate Institute of Medical Education & Research, Chandigarh.

Wild life biology seminar held at Mannampandal

A.V.C. College, Mayuram, Thanjavur District of the Madras University, organised a three-day seminar on Wild Life Biology with University Grants Commission's assistance. The seminar was attended by fourteen outstation and sixteen local participants. The college is the only institution to have introduced Wild Life Biology at Post-graduate level, in Madras Univrsity. It has an advantage of heaving an easy access to Vedaranyam Wild Life Sanctuary. The seminar identified certain well defined projects in Wild Life studies.

Seminar on problems of development of a developing country organised in Tuebingen

Institute of Scientific Cooperation, Tuebingen University, Tuebingen organised a Seminar on "Indian—Entwicklungsprobleme eines Schwellenlandes" (India : Problems of development of a developing country) from 4th to 6th December 1981 in Tuebingen in cooperation with Friedrich Neumann Foundation. About 75 persons from different universities, educational organisations (including some students) participated in this Seminar. The topics discussed at the Seminar were : (i) North-South dialogue and development aid: India's economy in the world today; (ii) The role of religions in the modernising process; (iii) Agricultural production and food situation in India; and (iv) Alternatives of village development in India.

Institute of Scientific Cooperation of which Dr. J.H. Hohnholz is the Director, is bringing out several periodic journals/news bulletins namely Universitas, Mundus, German Studies, Education, Economics, Natural Resources and Development etc.

Mr J.N. Sharma, First Secretary (Edu. & Sc.) in the Indian Embassy at Bonn participated in this Seminar on behalf of the Embassy.

News from Agril. Varsities

Rao warns against regionalism in universities

Rao Birendra Singh, Union Agriculture Minister, addressed the Vice-Chancellors of Agricultural Universities whom he met in a conference in New Delhi. He wanted closer involvement of the Indian Council of Agricultural Research in the selection of Vice-Chancellors of agricultural universities. With regard to the enrolment of students and appointment of staff, he suggested that regionalism and parochialism should be avoided and only fair selection should be made. He suggested the creation of a central pool of agricultural scientists to meet the needs of universities and agricultural research institutes. He also favoured the creation of central universities for neglected areas and regions. At the same time he was not in favour of the proliferation of universities in areas already over-populated. He felt that one central university could be set up in the north-east India in collaboration with the ICAR to look to the pressing needs of this region. Similarly a specialised institution to deal with such problems as fisheries research was essential. All the fishery colleges and fishery research institutes run by the ICAR and the Union Ministry of Agriculture could be affiliated to this university.

The Minister also suggested that the agricultural universities should pay greater emphasis on production of quality seeds and quality plants. He noted that some of the universities were already doing good job in release of quality fruits, plants and seeds. He, however, said that each university should set aside a part of its farm for producing quality material. He indicated that the Central Government may bring forth a legislation for controlling the quality of planting material. Some private nurseries indulge in malpractice to the detriment of the interest of the growers. The Union Government has asked the state farms to allocate a portion of their land for production of quality plants.

The one-day conference in Delhi was attended by the Vice-Chancellors from twenty two agricultural universities. The focus of discussion was on reviewing the working relationship between the Council and the agricultural universities, the policy on funding foreign-aided projects and the inter-agency research programme on bio-technology.

New agriculture colleges for Bihar

The Government of Bihar is considering a proposal to establish three new colleges for agriculture and allied subjects during the Sixth Plan. Dr. Jagannath Mishra while inaugurating a new administrative and academic complex of Rajendra Agriculture University said that one of these colleges would be for Institute of Dairy Development and the other two would be for fisheries development and agriculture engineering.

The administrative complex of the University has been constructed with financial assistance from the World Bank received through the Indian Council of Agricultural Research. The complex houses the College of Agriculture, College of Basic Sciences and Humanities, College of Home Science and the university library. On this occasion, the statue of late Dr Rajendra Prasad, first President of India was also unveiled.

Horticulture university for Solan

Mr Ram Lal, Chief Minister of Himachal Pradesh said in Simla that the government has sanctioned a three crore rupees scheme for grant of scholarships to needy persons whose annual income is less than Rs 6000 for the education of their children. He said that steps have also been taken to set up a full-fledged horticulture university at Solan. Himachal Pradesh has enormous development potential in this area.

Science & Technology

Environmental studies in varsity curricula suggested

An international conference of environmental education was held in New Delhi. The conference has been jointly organized by the Department of Environment and the Indian Environmental Society and is being supported by the Indian National Science Academy, the University Grants Commission, the Indian Council of Agricultural Research, the Planning Commission, the NCERT, the UNESCO and the UNEP, the Asian Environmental Society and a number of national and international organizations. Dr M.S. Swaminathan, Member of the Planning Commission and Chairman of the organizing committee, said in New Delhi that a broad set up in bringing about changes in environmental studies has been suggested. The most pertinent objective is the attempt to identify steps necessary for implementing the recommendations of the earlier international meeting on the same subject sponsored by the U.N. system, held at Belgrade, Bangkok and Tbilisi besides various regional workshops. Among the target groups sought to be aimed now are Government organizations, youth and community leaders and administrators.

Dr Swaminathan explained that environmental education is a field that does not admit simple solutions and generalized approaches. In a country like India with its vast array of cultures, economic and educational levels no uniform package fits all specifications. Broad classifications like formal and non-formal education are only the very first steps towards formulating programmes appropriate for different target groups. Our main challenge lies in effectively reaching those whose lives impinge most directly on the enivironment and its resources.

Formal environmental education within the confines of classrooms and laboratories are perhaps somewhat more manageable. But here again a problem arises. Those students being trained in environmental science at the college level often find it difficult to locate appropriate job opportunities. Unless the environmental movement takes practical shape in the Government, private industry and research institutions those trained in this field will be at a double disadvantage. There are no jobs to suit their specialization and they are not taken where biology, chemistry or other science students are required. Holding of a national environmental congress was also discussed. In ecology study of the Ganges, the entire Himalayan belt and that of the Western Ghats would be taken up. The vice-chancellors' in one of the conferences have already agreed that the study on the Himalayan region would be undertaken by the dozen universities situated on its banks. Theses universities have a huge potential of 1.5 lakh students. The ecology study in the Western Ghats would be undertaken from the Konkan to Kerala region. This would be undertaken by Pune University.

Copper from sea nodules

Dr Homi Sethna, Chairman, Atomic Energy Commissions, has appealed to the non-ferrous metals manufacturers to concentrate on extraction of copper from sea nodules and on recovery of the metal from secondary sources. He was inaugurating a seminar on copper and its alloys in the 80s jointly sponsored by the Indian Copper Information Centre and Indian non-Ferrous Metals Manufacturers' Association in Bombay. Dr Sethna felt that India where copper was used to even in Pre-Harappan era had to depend heavily on imports of the metal and its alloy.

K.S. Rajan, Union Secretary for Technical Development felt that it was unfortunate that the country had to import 70 per cent of the total demand of the metal. The proposed expansion of smelter and refining capacity at both Ghatsila and Ketri complexes coupled with rapid progress of Malanjkhand mining project, would help reduce the dependence on imports in the near future.

INSA announces grants for young scientists

The Indian National Science Academy has invited applications for travel fellowship grants from young research scientists (below 35 years of age) under the INSA-COSTED (Indian National Science Academy—Committee on Science and Technology in Developing Countries) Programme. Applicants intending to participate in International Conferences/Symposia/Short-term Training Programme and Workshops should send their formal requests at least three months prior to the date of the commencement of the Conference. Applications will be considered twice a year received before June 30 or before December 31. Candidates selected will be supported fully for their travel cost jointly by COSTED and INSA. Applications may be obtained from Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002.

ISM to host Indo-polish symposium

The Indian School of Mines in collaboration with the Academy of Mining & Metallurgy, Cracow (Poland) will organise Symposium on "Applications of Geological and Geophysical Techniques to Mining" from 18th to 20th January, 1982. The Symposium has been sponsored by the University Grants Commission under an approved scheme of bilateral academic collaboration between institutions of higher education in India and Poland. The focus of discussion at the symposium would be on (i) Geostatistical and computer methods of mineral grade and reserves estimation; (ii) Evaluation of persistence of ore bodies in depth; (iii) Reduction of risk in Mining (a) Rockbursts and their seismic monitoring; (b) Geohydrological hazards and their evaluation; (iv) (a) Detection of subsurface cavities; (b) Ground vibrations due to blasting and evaluation of their possible effects; [(c) Other methods.

News from UGC

UGC stresses restructuring of undergraduate courses

The University Grants Commission proposes to re-structure the undergraduate courses in a radical fashion. In the context of the adoption of the ten-plus-two-plus-three pattern of education, the UGC has formulated certain guidelines for reorganisation and diversification of these courses, and introduction of flexibility, relevance, practical orientation and inter-disciplinary approaches. These guidelines have stressed that the undergraduate courses should be so structured that every student is given a grounding in four vital areas. These would require (1) a set of foundation courses designed to create an awareness of different areas; (2) a set of core courses that will enable students to acquire a broad familiarity with some chosen disciplines, including study of one or more of them in depth; (3) some applied studies, projects or field work; and (4) an involvement in extension programmes. The process of formulation of courses of studies and syllabi is in progress in many universities in the light of these guidelines.

The Commission is overhauling the present examination system. The new system has three basic components: gradual replacement of external examination by internal assessment based on continuous sessional evaluation, creation of a network of question banks and adoption of a grading system in place of the prevailing marking system.

In accordance with an action plan drawn up by UGC 41 universities, 15 agricultural and technological universities and seven institutions deemed to be universities have already adopted continuous sessional evaluation at various levels. Some of them have done so on an experimental basis.

Under the present system a student is tested at the end of the academic term and writes essay-type answers, in three hours. Those three hours become most crucial for him as his whole performance is judged during this plan of time. The need for a different system was felt as back as 1964 when the Education Commission said in its report that a system of internal assessment should be introduced as a supplement to the external examination based on such periodical evaluations. The examination is a continuous process and the teacher is the best judge of his students. Unless a student is periodically examined and corrected, the whole idea of education is defeated". The result of these internal assessments should be separately indicated on the mark sheet and not mechanically added to the external marks. The U.G.C. has formed an implementation committee consisting of educational experts to review the progress in implementing these examination reforms.

Borlaug Award

Dr R.S. Murthy, Director, National Bureau of Soil Survey and Land Use Planning at Nagpur has been awarded the prestigious Borlaug Award for 1980. The Award was instituted by Cormandel Fertilisers Ltd. in the honour of Dr Norman E. Borlaug and his contribution to the advance of wheat production in India and elsewhere. It is annually awarded to Indian scientists for their outstanding contribution to agriculture and research. The award carries a gold medal and a cash prize of Rs 10,000 and citation. Sir John Crawford, Chancellor of Australian National University, came to New Delhi to preside over the function. Dr Murthy due to sudden illness was not present and the award was received on his behalf by Dr M.S. Swaminathan, Member, Planning Commission.

Khosla award for Dr. O.N. Chaturvedi

Dr O.N. Chaturvedi, a management specialist of Roorkee University, has won the prestigeous Khosla award for the year 1980-81. This award is given by the university for outstanding research paper in the field of engineering and allied sciences. Dr Chaturvedi has proposed a novel system for appraisal of institutes of higher learning.

Bhatnagar awards for nine scientists

Dr Shanti Swarup Bhatnagar awards were announced in Delhi. The following are the recipients of the award—Prof S.C. Dutta Roy of the Indian Institute of Technology, New Delhi; Dr Sushil Kumar of the Indian Agricultural Research Institute; Dr P.V. Sane of the Bhabha Atomic Research Centre, Bombay; Dr S.M. Roy, Tata Institute of Fundamental Research and Prof R. Srinivasan, Indian Institute of Science, Bangalore (Physical sciences), Dr D. Balasubramaniam, Centre for Cellular and Molecular Biology, Hyderabad and Prof B.M. Deb, Indian Institute of Technology Bombay (chemical sciences), Dr. C. Chaturvedi, K.G. Medical College, Lucknow (medical sciences) and Prof J.K. Ghosh, Indian Statistical Institute, Calcutta (mathematical sciences).

The award carries a cash prize of Rs 20,000/- and will be presented by the Prime Minister.

To Our Readers

To meet partially the rising cost of production it has been decided to increase the subscription rates of UNIVERSITY NEWS from 1.1.1982. The revised rates are :

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5 years	80.00		
Single copy	1.25	5.00	10.00

RESEARCH IN PROGRESS

SOCIAL SCIENCES

Library Science

1. Devaranjan, G. An investigation into the financing of the Kerala, Cochin and Calicut University Libraries during the 3rd, 4th and 5th Five-Year Plan periods. University of Kerala. Prof. K.A. Isaac, Department of Library and Information Science, University Library, Trivandrum.

2. Gopinathan Nair, N. A comparative study of the Colon Classification, Dewey Decimal Classification and Universal Decimal Classification with reference to their application to Medical Science. University of Kerala. Prof. K. A. Isaac, Department of Library and Information Science, University Library, Trivandrum.

3. Subbiah, Revaru. Survey and control of Indian agro-biological data and information towards evolution of Indian National Agricultural Information System (INAGRIS). University of Kerala. Prof. K A. Issac, Department of Library and Information Science, University Library, Trivandrum.

4. Varghese, M. Evolution of the relative performance of Chain Indexing, PRECIS and POPSI with special reference to chemical literature. University of Kerala. Prof. K. A. Issac, Department of Library and Information Science, University Library, Trivandrum.

Sociology

1. Nandakumar, P. T. Victims of Road accidents : A sociological study. University of Kerala. Shri R. Sankaradasan Thampi, Dwaraka, 39, Shanti Nagar, Trivandrum.

2. Yadav, K.D. Interrelation between adoption of improved technology in agriculture and social change in rural areas of Indore Division. University of Indore. Dr. (Miss) K. Rajwade.

Political Science

1. Airen, Ramchandra. The political implications of the super powers aid to India. University of Indore. Dr. Arvind Kumar Maru.

2. Banthia, Hukmi Chand. Madhya Pradesh Vidhan Sabha mein virodi dal kee bhumika varsh 1957 se 1971 tak. University of Indore. Dr. M.K. Maheshwari.

Economics

1. Nagar, Indu. Madhya Pradesh ke Malwa kshetr mein bhoomiheen shramik. University of Indore. Dr. (Smt.) S. Mahalati.

Law

1. Dube, Nisha. Euthanasia : An inter-disciplinary study. University of Indore. Dr. G.C. Kasliwal.

Education

1. Ease, Jacob C. An investigation into certain casual factors of underachievement in Malayalam in secondary schools of Kerala. University of Kerala. Dr. A. Sukumaran Nair, Head, Department of Education, University of Calicut.

HUMANITIES

Philosophy

1. Dey, Madhu Mita. Manavendra Nath Rai ke niti siddhant ka alochnatmak mulyankan. University of Indore. Dr. D.D. Bandiste.

Literature

English

1. Parvathy Devi, N. Love and sex in the poetry of Toru Dutt, Sarojini Naidu and Kamala Das. University of Karala. Dr. K. Ayyappa Panicker.

Sanskrit

1. Dubey, Alpana. Tapas-vatsraj natak ka natya shastriya vivechan. University of Saugar. Dr. Kusum Mooriya.

2. Jain, Krishna. Shadtharshno mein srishti aur lai kee dharna ka vikas. University of Saugar. Dr. Bal Shastri.

3. Jain, Pramila. Ratna-karanthak Shravkachar : Ek siddhantik evam samikshatmak adhyayan (Anya Shravkachar sahitya ke sandhrabh mein). University of Saugar. Dr. Darbari Lal Kothiya.

4. Lahoti, Lalita. Rigved kee devat katha ka udgam evam vikas: Purukha-Urvashi samvad, Vishwamitra Nadi samvad tatha Deerdhatma kee katha ke vishesh sandarbh mein. University of Indore, Dr. P. N. Kawthekar.

5. Shraman, Shiva. Sanskrit sahitya mein Jain rupakon kee prampara. University of Saugar. Dr. Kusum Mooriya.

6. Tripathi, Prabhu Dayal. Sanskrit sahitya mein urvashi puruvan katha ka vikas. University of Saugar. Dr. Bal Shastri.

Hindi

1. Dixit, Raghunandan Prasad. Lakshmi Narayan Mishra ke samasyattar natakon ka anusheelan. University of Indore. Dr. S.D. Shukla.

2. Dwivedi, Mrudula. Pt. Sohanlal Dwivedi ke kavya ka sanskritik adhyayan. University of Indore. Prof. G. D. Tripathi.

3. Garg, Pushpa Rana. Dinkar ke gadya sahitya ka vivechnatmak adhyayan. University of Indore. Prof. G. D. Tripathi.

4. Garg. Sushma Rani. Dr. Ram Kumar Verma ka kavya : Uske vividh pakshon ka anusheelan. University of Indore. Dr. G. N. Tripathi.

5. Maheshwari, Manjubala. Harikrishan Premi ke sahitya mein adhunik yug bodh. University of Indore. Dr. (Miss) Chandrakiran Mishra.

6. Mandloi, Kiran Bala. Dr. Ram Kumar Verma ka gedya sahitya : Ek anusheelan. University of Indore. Dr. Shyamsunder Vyas.

Malayalam

1. Achari, V. Chandrababu. The poetical works of Kumaran Asan : A study in vocabulary. University of Kerala. Prof. N. Krishna Pillai, Nandanam, E. V. Road, Jagathy, Trivandrum.

2. Santhakumari, J. Kathakali texts of Kottayathu Thampuran : A Lexicological study. University of Kerala. Dr. B.C. Balakrishnan, Editor, Malayalam Lexicon, Trivandrum.

Geography

1. Kudav, Rita. Settlement morphology, folk dwellings and field patterns in a Himalayan region : Jaunsar-Bawar. Punjab University. Dr. A.B. Mukerji, Department of Geography, Panjab University, Chandigarh.

History

1. Raghuwanshi, Sharda. Holkar Rajya ke Angrezon se sambandh : 1944 se 1947 tak. University of Indore. Dr. J.C. Upadhyay.

2. Raikwar, Moolchandra. Holkar Rajya mein sankramankal : 1811 esvi se 1844 esvi tak. University of Indore. Dr. I.S. Mehta.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. **Bhanot, Amita.** An investigation of work efficiency of technical personnel in relation to their aptitudes, personality and motives. Panjab University.

2. **Kiran Lata.** Impact of urban environment on the development of cognitive behaviour in Rhesus monkeys. Meerut University.

3. **Tiwari, Banarasi Das.** Effect of dependence proneness on some cognitive processes. University of Gorakhpur.

4. **Tripathi, Kaushal Kishore.** An empirical study of development of time perspective in relation to deprivation. University of Gorakhpur.

5. **Tripathi, Narendra Kumar Mani.** Approval motives as a factor in some psychological process: An experimental study. University of Gorakhpur.

Sociology

1. **Mohamad, Sadegh Farbod.** Impact of technology on Abadan society. University of Poona.

2. **Ramamurthy, B.** Changing socio-economic conditions of Harijans in Chittoor District. Sri Venkateswara University.

3. **Trakroo, Piarey Lal.** Social patterns of seking medical care: A study of curative behaviour in rural areas. Panjab University.

4. **Uberoi, Patricia Robyn.** A cognitive study of revolutionary discourse: New youth and the Chinese new culture movement. University of Delhi.

Social Anthropology

1. **Karir, Baldev Singh.** Pre-historic and geomorphological investigations in the valley of Sutlej: North Western India. Panjab University.

Political Science

1. **Mahendra Singh.** Indo-US, relations 1961-64: A political study. Meerut University.

2. **Mudliar, Tyagraj Damodar.** Right to property in the Indian Constitution: A critical review and appreciation. Nagpur University.

3. **Rai, Beena.** Soviet-American relations, 1963-72: A critical study in bilateral international relations. Meerut University.

4. **Sengupta, Nirmalananda.** Politics and Government of Sikkim. University of North Bengal.

5. **Sengupta, Pradip Kumar.** Theory and practice of constitutional amendments in India: A study of their impact on the Indian political process. University of North Bengal.

6. **Siqueira, Judith.** Political socialisation of undergraduates in Goa. University of Poona.

Economics

1. **Ashok Kumar.** Monetary management in India with special reference to plan period. Meerut University.

2. **Borah, Ajit Kumar.** Pattern of land utilisation in Assam with special reference to Sibsagar and Nowgong Districts. Gauhati University.

3. **Chandra Prakash.** Demographic features and their impact on economic development of Uttar Pradesh. Meerut University.

4. **Chawla, D.R.** Industrial statistics in India with special reference to organised sector. Nagpur University.

5. **Jinnah, Farida Dawood.** An economic survey of consumer's co-operative societies in Poona, 1968-69 to 1970-71. University of Poona.

6. **Krishan Gobind.** Growth and development of motor car industry in India. Meerut ,University.

7. **Mahajan, Vijay Kumar.** India's traditional exports: Their projections and quantification of crucial factors influencing them, 1951-1974. Meerut University.

8. **Paliwal, Radhakrishna K.** Bhandara zile ke chawal kee arthvyavastha: Ek abhyas. Nagpur University.

9. **Sharma, Prakash Chandra.** India's tariff structure during 1965-75. University of Poona.

10. **Sharma, Ramsajivan.** Vindhya shetra mein krishi mazdooron ka shoshan. Awadhesh Pratap Singh University.

11. **Shukla, Brijraj Sharan.** Madhya Pradesh mein sahkari bank: Rewa sumbhag ke sandharbh mein vishesh adhyayan. Awadhesh Pratap Singh University.

12. **Zaidi, S.A.H.** Cost and returns of banking in India. University of Delhi.

Public Administration

1. **Brij Bhushan.** Organisation and working of the Haryana State Cooperative supply and Marketing Federation Ltd. Panjab University.

2. **Sharma, Krishan Kumar.** Law and order administration at district level with special reference to Punjab. Panjab University.

Military Science

1. **Garg, Shiv Kumar.** Application of guerrilla operations in the war of liberation in Bangla Desh. Meerut University.

Education

1. **Amar Nath.** Comparative study of the organizational climate of government and privately managed higher secondary schools in Jullundur District. Panjab University.

2. **Gupta, Asha.** Personality and mental health concomitants of religiousness in the Tibetan students in the adolescent age group. Panjab University.

3. **Krishan Chand.** Child's conception of movement : An empirical study. Panjab University.

4. **Man, Bhuru Singh.** An experimental study of the effect of unit tests on retension following programmed instruction material in a segment of physics. Himachal Pradesh University.

5. **Manav, Ram Niwas.** A study of attitudes, self-concept and values of professional and non-professional college students and relationship of these variables with their achievement. Meerut University.

6. **Rajwant Kaur.** An inquiry into the effectiveness of self-instructional audio-cassettes in developing teaching skills among student-teachers: A three-phased study. Panjab University.

7. **Sannakit, Satit.** A comparative study of administrative problems perceived by the school administrators at secondary school level in Bangkok Metropolitan Area and provincial area of Thailand. Panjab University.

8. **Sharma, Mahendra Pal.** Ex-post facto study of the effectiveness of N.C.C. programme with reference to some characteristics of cadets. Meerut University.

9. **Shukla, Prakash Chandra.** An evaluation of leadership in the educational administration at District levels. Meerut University.

10. **Srivastava, Niti.** Intelligence, interest, adjustment and family status as predictors of educational attainments of high school students. University of Gorakhpur.

11. **Sujatha, Rani, R.** A study of the relationship of masculinity-femininity trait in adolescents to their adjustment patterns and academic achievement. University of Kerala.

12. **Vats, Arunima.** Biochemical correlates of scholastic achievement, achievement motivation, creative functioning and anxiety. Meerut University.

Commerce

1. **Acharya, Vijaykumar Vasudeo.** Lift irrigation scheme in Maharashtra state: A case study of lift irrigation scheme at village Mandki, Tatuka Purandhar, Distt. Poona. University of Poona.

2. **Khurana, Parmod Kumar.** Corporate dividend behaviour in selected Indian industries. University of Delhi.

3. **Palande, Purushottam Sadashiv.** Fiscal system and problems of municipal corporations: A case study of the Pune Municipal Corporation University of Poona.

4. **Parvathiswara Rao, Badagala.** Problems and prospects of cashew industry: A case study of cashew industry of Srikakulam District. Andhra University.

5. Srivastava, Arvind Kumar. Managements of Panchayati Raj Institutions and rural development. Panjab University.

6. Vijay Asdhir. Settlement of industrial disputes in Panjab with special reference to textile industry. Panjab University.

HUMANITIES

Philosophy

1. Jasbir Kaur. An analysis of the problem of human-alienation with special reference to the social thought of Karl Marx. Panjab University.

2. Gadkari, Visha Arvind. The concept of freedom and determinism in modern thought. Nagpur University.

3. Mukhopadhyay, Purnachandra. Impact of the Upanishads on the nineteenth century western thought. University of Calcutta.

4. Singh, Shatrughan. Nature and function of reason and intuition. Magadh University.

5. Vanlalauva, C. Religious beliefs and customs among the Mizos before the advent of Christianity. Gauhati University.

Linguistics & Literature

English

1. Arun Kumar. International theme in the novels of Henry James. Meerut University.

2. Dimri, Jaiwanti. The war and the wound; Ernest Hemingway's short stories and non-fiction. Meerut University.

3. Kumar, Sarla. Place of feminism in the work of Mary McCarthy and Doris Lessing. Panjab University.

4. Narendra Kumar. Tolstoy and his search for the meaning of life and religion. Panjab University.

5. Phoolka, Jatinder. Elements of tradition and experiment in the novels of George Eliot: An evolutionary approach. Meerut University

6. Phulwant Singh. Lovelina. Image of Jew in the novels of Saul Bellow, Bernard Malamud and Philip-Roth. Panjab University.

7. Ranjan Kumar, Nalini. Critical sense of the creative artists with special reference to Shakespeare, Henry James and T.S. Eliot. Magadh University.

Sanskrit

1. Chakrabarti, Gouri. Jeevandhar Champu ka samalochanatmak vishleshan. Meerut University.

2. Deep Narayan. A cultural study of Brahmanda Purana. University of Gorakhpur.

3. Gupta, Premlata. Kalidas kee saundarya drishti. University of Rajasthan.

4. Roy, Maya Rani. Mrigdhabodh vyakaran kee Panini vyakaran se tulana. University of Gorakhpur.

5. Sharma, Ghan Shiam. A critical study of the Naishadhiya Charita in the light of Auchitya. Panjab University.

6. Sharma, Vijay Kumar. Sociological study of Srauta-rituals with special reference to Katyayana-Srauta-Sutra. Panjab University.

7. Sharma, Yogendra. Atharva ved kee darshnik sameeksha. University of Gorakhpur.

8. Shukla, Nitya Nand. Brahman granthon mein srishti vichar. University of Gorakhpur.

Punjabi

1. Davinder Bir Singh. Guru Nanak Dev ji di bani vich kirat da sankalap. Panjab University.

Hindi

1. Devki, Vikram kee atharahavi shatabadi ke kavya mein chitrit samaj University of Delhi.

2. Dubey, Indira. Premchand ke upanyas sahitya mein yugbodh. Nagpur University.

3. Dwivedi, Pramila. Chidambra ke vishishita sandharbh mein Pant ke kavya ka vikasatmak adhyayan. Meerut University.

4. Dwivedi, Ramlalar. Rajni Pannikar ke upanyas sahitya ka alochnatmak adhyayan. Awadhesh Pratap Singh University.

5. Gautam, Veena. Hindi ke samajik natakon mein madhyabargiya chetna, 1930-1970. University of Delhi.

6. Geeta Rani. Auchitya siddhant ke adhar per Prasad-kavya ka anusheelan. Meerut University.

7. Gupta, Manju. Upendra Nath Ashak ke natakon ka alochnatmak adhyayan. Meerut University.

8. [illegible] Singh. Swatantrata ke pashchat [illegible] Hindi upanyaskaron ke pradeya ka mulyankan. Nagpur University.

9. Jindal, Raksh Paul. Swatantroyttar Hindi sahitya ke mulyankan ke adhar. Panjab University.

10. Seksena, Sunita. Mahadevi Verma ke kavya mein sangeet tatva. Meerut University.

11. Satish Kumar. Rasayanshastra kee Hindi paribhashik shabdawali ke bhasha vyagyanik vishleshan tatha mulyankan. Panjab University.

12. Saxena, Madhu. Ramdhari Singh Dinkar ka gadya sahitya. Meerut University.

13. Sharma, Badri Vishal. Ramkavya mein mataonka swaroop : Balmiki se Tulsi tak. Awadhesh Pratap Singh University.

14. Sharma, Kanti Mohan. Premchand aur achhut samasya. University of Delhi.

15. Sharma, Naresh Kumar. Dushyant Kumar: Vyakti parivesh tatha sahitya. Panjab University.

16. Shukla, Bal Krishna. Madhyayugeen kaviyon kee prem dharanaon ka tulnatmak ansusheelan. Awadhesh Pratap Singh University.

17. Singh, Neo Raj. Pudmavat kee antah kathaon ka samikshatmak adhyayan. Meerut University.

18. Tripathi, Keshava Bihari. Hindi bhakti sahitya ke adhyayan me pashchatya vidvanon ka yogdan. University of Gorakhpur.

19. Tripathi, Satya Narain. Hindi ritibadh kavyabhasha kee kriya sanrachna. *D. Litt.* University of Gorakhpur.

20. Verma, Bimla. Uttar Pradesh ke purvee va pachshchimi kshetron ke lok-sanskritik-vishyak bhumi va bhitti alankaran; Ek tulnatmak adhyayan. Meerut University.

21. Watts, Rajinder Sarup. Hindi kavya mein mithkon aur purakathaon ke punarvivechan. 1900-1950. Panjab University.

22. Yomuna Kumari, P. Pragativadi kavya me yug chetna. Osmania University.

Urdu

1. Obaida Begum. Fort William college-kee-Adabi Khidmat. University of Gorakhpur.

2. Qazi, Husain Afzal. Mir-ki-Sheri-Lesaniyat; Ghazalon-kee-Roshni-mein. University of Gorakhpur.

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1. Dabholkar, Lalit Charudutta. Sant Tukaram va Ramdas yancha kavya ani karya: Tulanatmak samgradarshan. Nagpur University.

2. Ghode, Ramdas Shamrao. Sant Tukaram va Sant Tuk Doji yanchya sahityateel samajik kranticha tulanatmak abhyan. Nagpur University.

3. Padwad, Suresh Wasudeorao. Rashtrasant Tuk Doji Maharaj yanchya sahityateel vaicharik krantdarshitva. Nagpur University.

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Persian

1. Khad, Mir Fazaluddin Ali. A critical edition of the Diwan-i-Sharaf Jahan Qazwini. Osmania University.

Arabic

1. Azmi, Zohurul Bari. Development of the schools of Fiqh during the Umayyad period. University of Delhi.

Kannada

Hanumantharaya, T. A semantic classification of Kannada verbs. University of Poona.

Telugu

1. Anjaneyulu, A. Study of the language in Sreenatha's works based on Sreenatha Pada Prayoga Kosamu. University of Delhi.

Geography

1. Lal, Chandra Prakash. Geonomic survey of Ballia District. University of Gorakhpur.

2. Pandurkar, Ramchandra Gopal. Spatial distribution of some diseases in Maharashtra: A study in medical geography. Shivaji University.

3. Pawar, Chandrakant Tatyaba. Irrigation and its impact on agricultural landuse in upper-Krishana Basin (Maharashtra): A geographical analysis. Shivaji University.

4. Sharma, Dharam Narain. The Upper Ganga and Yamuna Doab: A study in human geography. Meerut University.

5. Sinha, Satish Chandra. Medical geography of Uttar Pradesh. University of Gorakhpur.

History

1. Gupta, Mahesh Chandra. The Arya Samaj Movement and its impact on education in Westren U. P. Meerut University.

2. Kapoor, Satish Kumar. Swami Vivekanand: A study of his sojourns and impact on the West 1893-96. Panjab University.

3. Kripal Singh. Jawaharlal Nehru and Muslim politics, 1928-1940. Meerut University.

4. Narad Rai. The early history of Kausambi. University of Gorakhpur.

5. Pathak, Jainendra Prakash. Bhartiya dharma aur Sanskrit mein Brahma. University of Gorakhpur

6. Sharma, Raghunandan. Moderates in the Indian National Movement, 1885-1920. Meerut University.

7. Singh, Gyan Prabha. A study of the Jayakhya Samhita. University of Gorakhpur

8. Singh, Hridaya Narain. Major brahminical religions and schools of philosophy in the Santiparva of the Mahabharata. University of Gorakhpur.

9. Singh, Shobha. Social and agrarian reforms in United Provinces of Agra and Oudh subsequently the state of Uttar Pradesh from 1935 to 1939. Meerut University.

10. Srivastava, Shailendra Pratap. Licchaviyon ka utthana evam patana. Meerut University

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(Continued on Page 34)

CLASSIFIED ADVERTISEMENTS

INDIAN INSTITUTE OF TECHNOLOGY

KHARAGPUR

Advertisement No. R/1/Scheme/81

Applications are invited for the undermentioned posts in the different *sponsored research schemes at the* Indian Institute of Technology, Kharagpur. All posts are on contract basis for the period mentioned against each. The contracts are renewable if *the schemes are continued.*

I. **Centre : Materials Science Centre**

Scheme—1 : 'Investigation of Microwave and Optical Properties of Amorphous Semiconductors'.

Post : Research Associate—1 post

Pay : Rs. 1400/- p.m. (Consolidated)

Duration : *2 years*

Qualification & Experience

Essential : Ph.D. in Physics or Radiophysics or Electronics & Electrical Communication Engineering in the field of Semi-conductor materials or devices.

Desirable : Experience in thin film preparation and characterization.

Scheme—2 : 'Development of alkaline durable glass-fibres for reinforcement with cement'

Post : Research Engineer—1 post.

Pay : Rs. 1300/- p.m. (Consolidated)

Duration : 2 years.

Qualifications & Experience

Essential : A good Bachelor's degree in *Mechanical*/Metallurgical/Civil/Ceramic Engineering with adequate research/industrial experience:

OR

A Ph.D. in Physics/Chemistry with adequate experience in glass fibre drawing/composite materials.

Desirable : Experience in the field of ceramic fibre composition.

Scheme—3 : Unconventional methods of glass-making with special reference to pure silica wares and silicate thin films'

Post : Research Associate—1 post

Pay : Rs. 1400/- p.m. (Consolidated)

Duration : *2 years*

Qualifications & Experience

Essential : A Ph.D. degree in Ceramics / Chemisty/ Materials Science/Physics with good academic record.

Desirable : Experience in Colloid Science and Advanced Instrumental Analysis. Sufficient knowledge in preparation and characterization of glass.

Scheme—4 : Solid state batteries with lithium ion conductors'

Post : Research Associate—1 post

Pay : Rs. 1200/- p.m. (Consolidated)

Duration : *3 years*

Qualifications & Experience

Essential : A Ph.D. Degree in Electrochemistry/Solid State Physics/Materials Science/Ceramics and adequate experience in research in solid electrolytes,

Desirable : Experience in the preparation and characterisation of glass and ceramic materials. Capability of carrying out independent research.

Scheme—5 : 'Development of Thermoplastic Elastomer'

Post : Research Associate—1 post

Pay : Rs. 1400/- p.m. (Consolidated)

Duration : *3 years*

Qualifications & Experience

Essential : Ph.D. in Polymer Chemistry/Polymer Physics/Polymer Technology/Polymer Engineering/Materials Science in the field of *Polymeric* Materials.

Desirable : Experience in
(i) Polymer Synthesis
(ii) Block & graft Copolymerization and
(iii) Characterization of Polymers by different instrumental methods.

II. **Department : *Agricultural Engineering***

Scheme—1 : 'All India Coordinated Programme on Weed Control'

Post—A : Senior Research Officer *(Agronomy)—1 post*

B : Junior Engineer—1 post

Pay : For Post A Rs. 1100-1600/- p.m.+DA
For Post B Rs. 700-1300/- p.m. +DA

Duration : 1 year

Qualification & Experience

(For Post A)

Essential : A good academic record with Masters degree and [illegible] Ph.D. degree in Agronomy; three years experience in agronomic research.

Desirable : Knowledge of Weeds and Weed Control and modern methods of field experimentation.

(For Post B)

Essential : Masters degree in Agricultural Engineering, knowledge of design, development and fabrication of agricultural implements *with 2 years research* experience in Farm Machinery and Power.

OR

First class Bachelors degree in Agricultural Engineering with 4 years' experience in Farm Machinery and Power.

Desirable : Ph.D. degree in Agricultural Engineering, knowledge of design, development and fabrication of agricultural *implements.*

Scheme—2 : 'Model Agronomic Experiments Scheme (ICAR)'

Post : Assistant Agronomist (Agronomy)—1 post

Pay : Rs. 700-1300/- p.m.+DA

Duration : 1 Year

Qualification & Experience

Essential : First class M.Sc. (Ag.) with 3 years' research experience in Agronomy or Crop. Production.

Desirable : *Ph.D.* in respective field and knowledge of agricultural statistics and field experimentation and preparation of research reports.

Scheme—3 : 'Improvement in soil physical conditions to increase agricultural production in problematic areas'

Post : Senior Research Officer—1 post

Pay : Rs. 1200-1900/- p.m.+DA

Duration : 3 years

Qualifications & Experience

Essential : A good academic record with Bachelors and Master degrees in Agricultural Engineering with specialization in Soil Science/Soil Physics and Doctorate degree in respective field.

Desirable : Seven years' experience

in agricultural research of which at least two years should be in appropriate field; special knowledge in field experimentation.

III. Centre : **Post Harvest Technology Centre**

Scheme—1 : **'Harvest & Post Harvest Scheme (ICAR)'**

Post : Senior Research Officer —1 Post

Pay : Rs. 1200-1900/- p.m.+DA

Duration : 5 years

Qualifications & Experience

Essential : A good academic record with Master's degree in Agricultural Engineering and Ph.D. in Agricultural Engineering, preferably with specialization in Crop Process Engineering. 7 years' experience in the field of Crop Process Engineering of which 3 years should be in teaching and/or research.

Desirable : Experience in guiding research with aptitude for doing transfer of technology work with the farmers and rice millers.

Scheme—2 : **'Regional Extension Service Centre (R.M.)'**

Post : Junior Engineer (Extension) — 1 Post

Pay : Rs. 700-1600/- p.m.+DA

Duration : 5 years

Qualifications & Experience

Essential : A good academic record with Master's degree in Agricultural Engineering preferably with specialization in Crop Process Engineering. Aptitude for doing extension work with farmers and rice millers.

Scheme—3 : **'Manufacture of Cement from Paddy Husk at village level' (Govt. of W.B.)**

Post : Junior Research Officer —1 Post

Pay : Rs. 700-1600/- p.m.+DA

Duration : 3 years

Qualifications & Experience

Essential : A good academic record with Master's degree in Agricultural Engineering preferably with specialization in Crop Process Engineering and some experience in the field of applied research.

OR

A good academic record with Master's degree in Chemical Engineering or Materials Science with experience in Cement/Ceramic Technology and with some industrial experience.

Scheme—4 : **'Stabilization and Post-stabilization Technology of Rice Bran'**

Post A : Research Engineer—1 Post

Pay : Rs. 700-1300/- p.m.+DA

Duration : 3 years

Qualifications & Experience

Essential : A good Master's degree in Agricultural Engineering with specialization in Crop Process Engineering/Food Technology and Biochemical Engineering.

Desirable : One year's research experience in the relevant field.

Post B : Biochemist—1 Post

Pay : Rs. 700-1300/- p.m+DA

Duration : 3 years

Qualifications & Experience

Essential : A good Master's degree in Biochemistry/Chemistry/Plant Science with Ph.D. in the field of plant biochemistry and one year research experience in the relevant field.

IV. Centre : **Radar and Communication Centre**

Scheme—1 : **'Microwave Antennas including Phased Arrays (MAPA)'**

Post : Principal Scientific Officer—2 Posts

Pay : Rs. 1500-2000/- p.m.+DA

Duration : 1 year

Qualifications & Experience

Essential

(i) A good academic record with a Bachelor's or Master's degree in Electronics & Electrical Communication Engineering/Radio Physics and Electronics or equivalent and a doctorate degree.

(ii) 12 years' experience in the field of specialization prescribed of which at least 5 years should be in research & development

(iii) Published research work and experience in guiding research.

Desirable : Experience in teaching/guiding research. Good design and/or industrial experience.

Scheme—2 : **'Electromagnetic Scattering and Target Identification (ESTI)'**

Post : Senior Scientific Officer —6 Posts

Pay : Rs. 1200-1900/- p.m. +DA

Duration : 2 years

Qualifications & Experience

Essential

(i) A good academic record with a Master's degree in Electronics and Electrical Communication Engineering/Radiophysics and Electronics or equivalent and a Doctorate degree

OR

(ii) Good Master's degree in Physics with Electronics specialization/Geophysics and a Doctorate degree (only for GDCM).

OR

(iii) 7 years' experience in the field of specialization of which 2 years should be in research & development.

Desirable : Published research work of good standard and experience in development work guiding research.

Scheme—3 : **'Detection of Geological Discontinuities and Weak Zones in Coal Mines using Radar Techniques (GDCM)'**

Post : Senior Scientific Officer —1 Post

Pay : Rs. 700-1300/- p.m. +DA

Duration : 2 years

Qualifications & Experience

Essential : A first class Bachelor's degree in Electronics and Electrical Communication Engineering with relevant experience.

OR

M. Tech. degree with 1 year relevant experience.

Desirable : A Doctorate degree

Field of specialization

Microwave antennas, phased array antennas, electromagnetic scattering, microwave engineering and electromagnetics

V. Department : **Chemistry**

Scheme : **'Reclaiming of Waste Rubber by Cryogrinding Technology and its reuse as Raw Materials in Plastics and Rubbers'**

Post : Research Associate—1 Post

Pay : Rs. 1100/- p.m. (Consolidated)

Duration : 2 years

Qualifications & Experience

Essential : A Ph.D. degree in Chemistry/Physics/Chemical Technology/Engineering with research/industrial experience in the field of Rubber Technology or Cryogenic Engineering.

Application forms may be had from

the Dean, Sponsored Research & Consultancy on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm. Applications accompanied with an Application Fee (non refundable) of **Rs. 7.50 (Rs 1.87 for SC ST candidates)** payable by means of a crossed Indian Postal Order to INDIAN INSTITUTE OF TECHNOLOGY, **KHARAGPUR** at Kharagpur 721302 Post Office should reach the Office of the Dean, Sponsored Research & Consultancy, I.I.T. Kharagpur 721302 (WEST BENGAL) by the **16th January, 1982** positively.

Applicants who are in the employment of Government/Semi-Government Organizations or of any Government undertaking must send their applications through proper channel.

M. A Ramlu
DEAN

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Applications are invited for the whole time posts of Professor in the following departments of the University College of Medicine in the grade of Rs. 1500-60-1800-100-2000-125/2-2500/-plus admissible allowances. Higher initial salary within the grade may be given to an exceptionally qualified candidate :

(1) **Department of Physiology**—One Post—Sir N.R. Sircar, Professor

(2) [illegible] Post. Es [illegible] First Class or High Second Class Master's degree or an equivalent qualification of a foreign University in the relevant subject; (b) Doctorate degree or with published work of high quality in journals of reupte; (c) About 10 years' experience of teaching in post-graduate classes and/or research and (d) experience of guiding research at Doctoral level. The candidate should be an outstanding scholar with established reputation who has made significant contribution to knowledge in the discipline concerned.

Practice in any form will not be admissible in case the selected person is a Medical Graduate. They shall have to satisfy further stipulations laid down by Medical Council of India for appointment to such posts.

The selected candidates will be placed on probation for one year which may be waived in exceptional cases. The appointment shall be subject to the rules laid down or to be laid down for the teachers from time to time.

Applications (Seven Copies) in prescribed form, (obtainable from the University Sales Counter on payment of **Rs. 5**/- or in case by post on sending a self-addressed **75 paise** stamped envelope of 27 cm x 13 cms size with crossed I P.O of **Rs 5**/- value in the name of Calcutta University) should reach the undersigned not later than **15th January, 1982.**

The choice of the Selection Committee may not necessarily be confined to those who apply.

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INDIAN SCHOOL OF MINES

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ADMISSION NOTICE 1982

Indian School of Mines, deemed to be a University under the UGC Act, invites applications for its Entrance Examinations for admission to the following groups of programmes :

I. 4-year (8 Semester) programme leading to the award of *B Tech* degrees in (i) Mining Engineering, (ii) Mining Machinery and (iii) Petroleum Engineering. About 135 seats are likely to be offered for this programme this year, including 75 in Mining Engineering (including 15 for Open Cast Mining Engineering), 30 in Mining Machinery and 30 in Petroleum Engineering.

II. 3-year programme leading to *M Sc Tech* degrees in (i) Applied Geology and (ii) Applied Geophysics: seats available 15 each. (Students of this programme are entitled to a scholarship @ Rs. 400/- per month in the final year.)

III. 3-year *Condensed degree* programme leading to the award of B Tech degrees in (i) Mining Engineering and (ii) Mining Machinery.

Entrance Examinations for all the three programmes shall be held on May 1 (Saturday) and May 2 (Sunday) 1982.

Eligibility

For Programme I : Pass in Intermediate *OR* two-year PUC *OR* All-India (XII Class) Senior School Certificate Examination *OR* plus—2 stage of the 10+2 pattern of education or equivalent in each case with Physics, Chemistry, Mathematics and English.

Those who are appearing at any of the above examinations may also apply: however their admission (if selected) will be subject to the condition that their examinations (both theory and Practicals) have finished earlier than 15th June 1982 and the results are announced before the completion of the 1st semester of the School.

For Programme II : (a) Applied Geology : Pass in B Sc examination with Geology and any two out of Physics, Chemistry and Mathematics.

(b) Applied Geophysics: Pass in B Sc examination with Physics, and any two out of Mathematics, Chemistry, Statistics and Geology.

In both cases, the candidate should have passed the Higher Secondary or equivalent examination with Physics, Chemistry, Mathematics and English.

For Programme III : A diploma in Mining (or Mining and Mine Surveying) in case of B Tech (Min Engg), and a diploma in Mech/Elec Engg in case of B Tech (Min Machinery), after having passed the SSLC/Matriculation or Higher Secondary or equivalent examination, *PLUS* three years' industrial experience *after* obtaining the diploma. Sponsored candidates are preferred for this programme.

Age Limit

Maximum age limit *22 years* for admission to Programme I (except for Pet Engg for which it is 21 *years*), and 24 years for Programme II. These limits are relaxable by three years in case of SC/ST candidates. There is no age limit for admission to Programme III.

General

(i) Those qualifying in the Entrance Examination for Programmes II and III, as also for Pet Engg—Programme I, may be required to appear for a personal interview as well.

(ii) 15% of the seats are reserved for Scheduled Caste and 5% for Scheduled Tribe candidates.

(iii) One seat each in Applied Geology and Applied Geophysics (Programme II) is reserved for GIRL CANDIDATES subject to their qualifying in the relevant Entrance Examination. Girl candidates are not eligible for programme No.I and III.

Last date for availability of Form : **February 22, 1982.**

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS: **FEB 28, 1982.**

No reason whatsoever shall be considered valid for late submission of the completed form.

Detailed Memorandum of Information and the Application Forms available from 11th January, 1982 (Form A for Programme I, Form B for Programme II and Form C for Programme III) can be had from the office of the undersigned either in person or by post on remitting a crossed Postal Order for **Rs 5/-** payable to Registrar, Indian School of Mines, Dhanbad.

Candidates should CLEARLY SPECIFY the form they require (A, B or C) in their request for the application form.

S P Varma
REGISTRAR

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

Notification No. 8

Applications are invited for the following posts in prescribed forms which will be available upto **16th January, 1982** alongwith the details of qualifications and Specialization from the undersigned on pre-payment of **Rs. 2.00 (Rs. 00-50 p.** for members of Scheduled Castes/Scheduled Tribes) by Crossed Indian Postal Order payable to Registrar, M.S. University of Baroda alongwith a self-addressed envelope of 30 cms. x 12 cms. for each post. The Form will be available in person during working days between **11-30 a.m. to 2-00 p.m.**

The applicant at the time of requesting for the prescribed forms should mention very specifically the Post Number also for which the forms are required. The Scheduled Castes/Scheduled Tribes candidate will attach a certificate to this effect.

Faculty of Arts

Reader in: (1) Linguistics
(2) Sanskrit
Lecturer in: (3) German

Faculty of Education and Psychology

Reader in: (4) Education
Lecturer in: (5) Psychology

Faculty of Fine Arts

Professor of: (6) Painting

Faculty of Home Science

Reader in: (7) Clothing and Textile
(8) Home Science Education and Extension
Lecturer in: (9) Clothing and Textile
(10) Foods and Nutrition

Faculty of Science

Reader in: (11) Chemistry (Physical)
Lecturer in: (12) Nutrition

M.K. Amin Arts and Science College and College of Commerce

Lecturer in: (13) Psychology

Oriental Institute

(14) Director
(15) Deputy Director

Physical Education Department

(16) Physical Instructor

College of Indian Music Dance and Dramatics

Reader in: (17) Dramatics
Lecturer in. (18) Dance (Kathak)
(19) Tabla

Scale of Pay

Professor/Director: Rs 1500-60-1800-100-2000-125/2-2500

Reader/Deputy Director: Rs. 1200-50-1300-60-1600-Ass-60-1900.

Lecturer: Rs. 700-40-1100-50-1300-Assessment-50-1600

Physical Instructor: Rs. 550-25-700-EB-25-750-30-900.

Reservation of the Posts is as Under

Number of posts reserved are mentioned in the Bracket.

1. **Scheduled Castes (SC):** Sr. No. 5 (1), 18 (1)

2. **Scheduled Tribes (ST):** Sr. No. 9 (1), 19 (1)

3. **Socially and Educationally Backward Communities (SEBC):** Sr. No. 10 (1)

If no suitable candidates are available from SC/ST/SEBC Categories, the posts will be filled up by other candidates who are found suitable.

The application form, duly completed, be sent to the Registrar, M.S. University of Baroda, Baroda-2 alongwith the Crossed Indian Postal Order for **Rs. 8-00 (Rs. 2.00** for SC/ST candidate) for the post of Lecturer and Physical Instructor and for the post of Professor, Reader, Director, and Deputy Director **Rs. 10-00** (Rs. **2.50** for SC/ST candidate) payable to the Registrar, M.S. University of Baroda on or before **30th Jan, 1982.**

The candidates if called for interview will have to come **at their own expenses.**

K.A. Amin
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 14/81-82

Applications, on the prescribed form, are invited for the following posts.

1. **Professors (2 Plan posts) in the Department of Ophthalmology Scale Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.**

Qualifications Essential

M.S. (Ophthalmology)
M.D. (Ophthalmology)
Speciality Board of Ophthalmology (USA)

Teaching and Research Experience

Must have worked as Reader for at least five years in the Department of Ophthalmology in a Medical College.

Desirable

Experience in Retinal Surgery, Ocular Pathology or Strabismology.

2. **Reader in Pharmacology, Department of Pharmacology, Scale Rs 1200-50-1300-60-1900 plus allowances.**

Qualifications Essential

For Medical Graduate

M.D. (Pharmacology)
M.D. (Pharmacology & Therapeutics)
M [illegible]
Pl [illegible]
D [illegible]

For [illegible]

M [illegible] of Gujarat University with Ph.D.
M.Sc. (Pharmacology) of Marathwada University with Ph.D.

Teaching and Research Experience

Must have worked as Lecturer in Pharmacology for atleast 3 years in a Medical College.

3. **Reader in Neuro-Surgery, Department of General Surgery**

Scale Rs. 1200-50-1300-60-1900 plus allowances.

Qualifications Essential

M.Ch (Neuro-Surgery)
Speciality Board of Neurological Surgery (USA).

Teaching & Research Experience

Must have worked as Lecturer in Neuro-Surgery for atleast 3 years.

4. **Readers in Economics (2 posts—temporary). Department of Economics Scale Rs. 1200-50-1300-60-1900 plus allowances.**

Qualifications Essential

(a) A first or a high second class Master's degree in the subject concerned of an Indian University or an equivalent foreign qualification.

(b) A research degree of a Doctorate standard or published work of a high standard.

(c) Atleast five years experience of teaching post-graduate classes and some experience of guiding research.

5. **Reader in Philosophy (temporary but likely to become permanent), Deptt. of Philosophy. Scale Rs. 1200-50-1300-60-1900 plus allowances.**

Qualifications Essential

(a) A first or a high second class Master's degree in the subject concerned of an Indian University or an equivalent foreign qualification.

(b) A research degree of a Doctorate standard or published work of a high standard.

(c) Atleast five years experience of teaching post-graduate classes and some experience of guiding research.

Desirable

Speciality in Logic/Contemporary Analytical Philosophy.

6. **Lecturers in Mech. Engg. (9 posts —one permanent and 8 temporary posts). Deptt. of Mech. Engg., Zakir Hussain College of Engg. & Technology Scale Rs. 700-40-1100-50-1600 plus allowances.**

Qualifications Essential

(a) Master's Degree in appropriate field in Engineering/Technology.

(b) Consistently good academic record with a Bachelor's degree in Engineering/Technology. First class at Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic/research institutions.

Having regard to the requirements of emerging fields of Engineering and of developing inter-disciplinary programmes the requirements of Engineering/technology degrees may be waived in the case of candidates who are otherwise well qualified.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment, failing which he will not be able to earn future increments, until he fulfils this requirement.

7. **Lecturer in Civil Engineering (temporary), University Polytechnic. Scale Rs. 700-40-1100-50-1600 plus allowances.**

Qualifications: Essential

(i) Master's degree in appropriate field in Engineering/Technology.

(b) Consistently good academic record with a Bachelor's degree in Engineering/Technology. First class Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic/research institutions.

Having regard to the requirements of emerging fields of Engineering and of developing inter-disciplinary programmes the requirements of Engineering/technology the degrees may be waived in the case of candidates who are otherwise well qualified. Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment, failing which he will not be able to earn future increments, until he fulfils this requirement.

8. ***Lecturer in Microbiology*, *Deptt.* of Ophthalmology.**

Qualifications Essential

M.D. (Bacteriology)/M.D. (Microbiology)
M.D. (Bacteriology with Pathology)
M D. (Pathology & Bacteriology)
M.Sc. (Bacteriology)/M.Sc. (Microbiology)
Ph.D. (Bacteriology)/Ph D. (Microbiology)
D.Sc. (Bacteriology)/D.Sc. (Microbiology)

Teaching & Research Experience

The requisite recognised postgraduate qualification in the subject and 3 years teaching experience as Tutor/Demonstrator in Bacteriology/Clinical Microbiology/Pathology/Immunology of which one year should be after post-graduate qualification.

Desirable

Research experience in Biochemistry/Clinical Microbiology/Immunology in an Ophthalmic Department of a Medical College/Institute of Ophthalmology.

9. **Lecturer in Cardiology, Department of Medicine. Scale Rs. 700-40-1100-50-1600 plus allowances.**

Qualifications: Essential

D.M. (Cardiology)

Teaching & Research Experience

The requisite recognised postgraduate qualification in the subject and three years teaching experience as Tutor/Registrar/Resident in Cardiology or a Cardiology Unit in the Deptt. of Medicine of which one year should be after post-graduate qualification.

Desirable

Published Research work in the Speciality.

10. **Lecturers in Pharmacology (2 posts — One Plan & one temporary but likely to become permanent) Scale Rs. 700-40-1100-50-1600 plus allowances.**

Qualifications Essential

M.D. (Pharmacology)
M.D. (Pharmacology and Therapeutics)
M.Sc. (Pharmacology)
Ph D. (Pharmacology)
D.Sc. (Pharmacology)

Teaching & Research Experience

The requisite recognised postgraduate qualification in the subject and 3 years teaching experience as Tutor/Demonstrator in Pharmacology of which one year should be after postgraduate qualification.

Desirable

Published research work.

11. ***Lecturer in Nephrology, Deptt.* of Medicine. Scale Rs. 700-40-1100-50-1600 *plus allowances.***

Qualifications Essential

D.M. (Nephrology)
M.D./M.R.C.P.* in Medicine with 2 years special training in Nephrology.
*Medical qualifications obtained in UK should have been obtained on or before **11.11.1978.**

Teaching & Research Experience

The requisite recognised postgraduate qualification in the subject and 3 years teaching experience as Tutor/Registrar/Resident in Nephrology/Medicine of which one year should be after post-graduate qualification.

Desirable

Published research work in the speciality.

12. **Lecturer in Microbiology (2 posts). Deptt. of Microbiology. Scale Rs. 700-40-1100-50-1600 plus allowances.**

Qualifications Essential

M.D. (Bacteriology)/M.D. (Microbiology)
M.D. [illegible]
M.D. [illegible]
M.Sc [illegible] biology)
Ph D. (Bacteriology)/Ph.D. (Microbiology)
D Sc. (Bacteriology)/D.Sc. (Microbiology)

Teaching & Research Experience

The requisite recognised postgraduate qualification in the subject and three years teaching experience as Tutor/Demonstrator in Bacteriology/Clinical Pathology/Resident Pathologist of which one year should be after post-graduate qualification.

Desirable Experience as a Lecturer

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **20th January, 1982.** Incomplete applications and those received late may not be considered.

Mahmood Ali
REGISTRAR

PUNJABI UNIVERSITY
PATIALA
Advertisement No. 34/PS/BRO/Estt./81

Applications are invited for the following posts :

1. CO - ORDINATOR (Training. *Orientation Centre) (NSS)—One* (Rs. 1200-50-1300-60-1900).

Qualifications

a) **Good** academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or *(ii) Innovation in teaching methods* or (iii) Production of teaching material.

b) About 5 years experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position. This condition is relaxable in the case of candidates with outstanding research work.

c) Candidates with at least three years experience of organising N.S.S. activities including orientation, Seminars etc. will be given preference.

2. **Junior Research Fellow** (U.G.C.): **One**
Department of Religious Studies @600/- p.m. (all inclusive).

Qualifications

Junior Fellowship is open to persons preferably below the age of 30 years, who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B+in the seven point grade system. Candidates with Master's degree in Philosophy/Religious Studies with some research experience will be preferred.

3. **Department of Botany (Plant Conservatory);**
Research Scholar (One) (Rs. 600/- p.m. all inclusive).

Qualifications

Ist class M.Sc. in the subject of Botany with two years research experience. Persons having experience of undertaking botanical excursions in connection with their research work on wild plants in the field of Cytology/Taxonomy/Morphology will be preferred.

4. **Research Scholar in Botany** (One) (Rs. 600/- p.m. all inclusive). (For Project entitled 'Cytogenetics of Indian Forest Trees).

Qualifications

Atleast Ist Class M.Sc. Botany. Those with specialization/research experience in Cytogenetics will be preferred. Candidates with two years experience in Cytogenetics will be given preference.

5. **Research Scholar in Political Science** (One).
Tenable for two years in the first instance @ Rs. 600/- p.m. all inclusive).

Qualifications

Candidates should possess atleast second class Master's degree with atleast one year teaching/Research experience after obtaining the Master's degree provided that the condition of experience may be relaxed in the case of Ist class M.A.'s provided further that a candidate with atleast 55% marks both in B.A. and M.A. could also be considered in case no first class M.A. is available.

6. **Department of Chemistry**
Technical Assistant (Grade-II) (Rs. 350-25-650/30-800).

Qualifications

M.Sc. (Physics, Applied Physics) with specialization in Electronics with 2 years experience or B.Sc. B.E. Electronics with 5 years experience or Diploma in Electronics with 7 years experience in operation, fabrication, maintenance and repair of electronic instruments.

Job requirement

Operation of Instruments, especially *spectrophotometers* and *their* maintenance.

7. **University Service and Instrumentation Centre.**
Technician-B (Electronics) (Grade Rs. 320-8-400-10-450).

Qualifications

Certificate Course from I.T.I. in Electronics/Electrical Engineering with 2 years experience.

General

Candidates for teaching & research posts should possess working knowledge of Punjabi upto Punjabi Praveshka standard; *Persons from outside Punjab could* however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- (Rs. 3/- for candidates belonging to Scheduled Caste/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala, should reach the University by **19/1/82.** The forms can be had from the Production & Sales Officer, Publication Bureau, Punjabi University, Patiala, on payment of Re. 1/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. stamped with 35 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF.

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **23/1/82.**

REGISTRAR

MANIPUR UNIVERSITY
CANCHIPUR, IMPHAL
Advertisement
18th December, 1981

No. MU 4-9/81. Applications are invited for the post of the Co-ordinator (Academic Affairs) & Controller of Examinations for the Manipur University at the pay scale of Rs. 1500-60-1800-100-2000 - per mensem plus Dearness allowance and other allowances admissible under the University rules. **Qualifications and Experience:** (i) First or high second class Master's Degree or equivalent qualifications; (ii) Considerable experiences in a responsible position in a University or in an institution of higher education or in a similar organisation; (iii) Ability to take organisational charge of meetings and administrative affairs of the University; (iv) Age preferably below 55 years; (v) Adequate experiences in semester system, letter grading and continuous evaluation techniques: or experiences of conducting University examinations and other allied works at the executive level for at least 10 years; (vi) A record justifying entrustment of confidential works.

2. It will be open to the University to consider names of suitable candidates who may not have applied. A higher starting pay may be granted to a highly qualified candidate. Both ways second class railway fare by the shortest route will be paid to the candidates invited for interview from out-stations. Applications, on plain papers and in duplicate, giving full particulars of the date of birth, educational qualifications, professional experiences, emoluments drawn, etc., together with the attested copies of testimonials should reach the Registrar Manipur University, Canchipur, Imphal .795003 latest by **15th January, 1982.** Those who applied earlier before **25.2.1981** need not apply again.

S. Sarat Singh
REGISTRAR

MANIPUR UNIVERSITY
CANCHIPUR : IMPHAL
Advertisement
19th December, 1981

Applications are invited for the following posts :

1. Professor (Political Science)
2. Professor (Economics)
3. Deputy Librarian.

Essential Qualifications

For Post No. 1 & 2

(1) Consistently good academic record with at least a high second class Master's degree in a relevant discipline or an equivalent qualification from an Indian/foreign University:

(2) An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level;

OR

(3) An outstanding scholar with established reputation who has made significant contribution to knowledge.

For Post No. 3

(1) At least a First or Second Class M.A./MSc./M. Com plus a First

or Second Class B.Lib. Sc. or Diploma in Library Science ;

(2) Good academic qualifications and research experience (with publications), the Degree of M.Lib. Sc. being a preferential qualification ;

(3) At least 7 years' experience as Assistant Librarian or in a responsible professional capacity in a library.

Area of Specialization

For Post No. 1.

1. Specialization in the field of Political theory including political analysis.

For Post No. 2.

1. Competence in the areas of Econometrics.
2. Development Economics
3. Banking
4. Industrial Economics
5. Agricultural Economics
6. Demography

Scale of Pay

For Post No. 1 & 2.

Rs. 1500-60-1800-100-2000-125/2-2500/- plus usual allowance as admissible to the members of the staff of the Manipur University.

For Post No. 3.

Rs. 1100-50-1300-60-1600/- plus usual allowance as admissible to the staff of the Manipur University.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

People who are on the eve of retirement or have just retired may also apply and for them the offers may be on contract for a period of 1 to 3 years.

Benefits of C.P. Fund-Cum-Gratuity/G.P. Fund-Cum-Pension-Cum Gratuity are available as per University rules.

Second class railway-fare plus the bus-fare for the road-link (both ways) will be paid to candidates invited to appear for interview from outside by the shortest route subject to production of railway/bus receipt. Persons already in employment should apply through proper channel. Applications addressed to the Registrar on plain papers and in duplicates containing the following particulars should reach the Registrar, Manipur University, Canchipur, Imphal-795003 by the **15th January, 1982**.

1. Name and Address :
2. Bio-Data (including the posts held so far) ;
3. Examinations passed indicating years and Division from the level of the School leaving examination.

S. Sarat Singh
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 12/81-82
Dated, 18 December 1981

Applications in the prescribed form are invited for the post of Lecturer in History in the approved scale of pay of Rs. 700-40-1100-50-1600/- with allowances and other benefits according to University Rules.

Minimum Qualifications

(a) A doctor's degree or published research work of an equally high standard, and

(b) Consistently good academic record with first or high second class (B in the seven point scale) Master's degree in the relevant subjects or an equivalent degree of a foreign University.

Desirable Qualifications : Specialisation or *Proficiency*

Specialisation in Mediaeval Indian History desirable.

The University Council may, on recommendations of the appropriate **Selection Committee, waive any of the** requirements in view of the candidate's specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with self-addressed stamped (0'50p.) envelope (9" x 4").

Last date for submission of application with requisite fee of Rs. 5/- is **20 January, 1982**.

A. K. Chaudhuri
REGISTRAR

UNIVERSITY OF POONA

Poona-411007
Centre of Advanced Study in Sanskrit

Applications are invited for the award of Associateships and Fellowships, in the Centre so as to reach The Director, C.A.S.S. on or before **30th January 1982**.

1. Two Research Associateships: Rs. 700-40-1100 (plus allowances) (Tenure posts)
2. Two Junior Research Fellowships: Rs. 600/- p.m. (Consolidated) (Tenure Posts)

Prescribed form of application can be obtained from the Publication Section of the University on payment of Rs. 10/- +1.50 postage for associateships and by sending a self addressed envelope (9" x 4") bearing 50 paise postage stamps, for fellowship.

S.D. Joshi
DIRECTOR
C.A.S.S.

Current Documentation in Education

(Continued from Page 27)

ADULT EDUCATION

Ravindranatha, M. N. "Role of part-time education in our educational system." *Journal of Indian Education* 6(5); Jan 81 : 37-40.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Eisemon, Thomas O. "Scientific life in Indian and African Universities : A comparative study of peripherality in science." *Comparative Education Review* 25(2); June 81 : 164-82.

Joshi, Ram. "Higher education in the U.S. and India." *University News* 19(19); 1 Oct 81 : 529-32, 556.

Krajnc, Ana. "The role and condition of scientific research in higher education in Yugoslavia." *Higher Education in Europe* 6(2); Apr-June 81 : 21-30.

Marklund, Sixten. "Sweden : Setting up the comprehensive school." *Prospects* 11(2); 1981 : 161-79.

Mohd. Muzammil. "Education in the scheme of plan priorities in Uttar Pradesh." *Education Quarterly* 33(2); Apr 81 : 16-20.

Pepper, Suzanne. "China's universities I : Experiments in socialist democracy." *Mainstream* 20(9) ; 31 Oct 81 : 11-13.

——. "China's universities II : Learning from the West." *Mainstream* 20(10); 7 Nov 81 : 11-13.

——. "China's universities III : Quest for educational quality." *Mainstream* 20(11); 14 Nov 81 : 19-20.

Shah, Madhuri R. "Future of university education." *University News* 19(20); 15 Oct 81 : 561-2, 569.

Rights of Minority Institutions

(Continued from page 4)

department and the officers may wonder why the Government should spend all the money necessary to run an educational institution without exercising any power over it. The courts have repeatedly held that the conditions imposed on minority educational institutions for purpose of granting recognition or affiliation or grant-in-aid should not indirectly take away the rights granted under Art. 30 (1).

The courts have also held that the right given under Art. 30(1) to minorities includes under certain circumstances the right of recognition, affiliation and grant-in-aid to their institutions. What is required is a change in the attitude of the Government machinery. Those who man it should be able to think that it is possible to fund an institution without having to exercise power over it. This needs maturity in thought and understanding. ☐

(Courtesy : The Mail)

Indian Council of Agricultural Research

Krishi Bhavan, New Delhi-110001.

Hari Om Ashram Trust Awards for the Year 1982

Nominations are invited for the Hari Om Ashram Trust Awards for the year 1982 Three awards of the value of Rs 10 000 each in cash or kind or both are given every year for outstanding original research fundamental or applied including inventions discoveries etc leading to results of practical value in any field or subject within the purview of research in agricultural sciences forest farming and social forestry and animal sciences (including fisheries)

All scientists engaged in research in the fields of agriculture forest farming and social forestry animal husbandry and allied sciences in India shall be eligible for the awards The results of research/achieved contributions made during the five years preceding the year of the award shall only be considered for the awards In the case of claims based on evaluation of new varieties strains the final trials should have been completed within five years preceding the year of award

Nomination can be made amongst others by Vice Chancellors of agricultural universities or other universities having faculty of agricultural or biological sciences Directors of research institutes including Principals of agricultural and veterinary colleges Presidents of scientific societies academies and heads of the principal scientific establishments in the country

Nominations for the awards should be supported by a statement of work achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data

The last date for receiving nominations for the awards is **31st March 1982** Five copies of the nominations on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri Rup Ram Additional Secretary(A) Indian Council of Agricultural Research Krishi Bhawan New Delhi 110001 The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm Applications nominations received without five sets of reprints of publications are liable to be rejected at the scrutiny stage

ICAR Awards for Team Research for the Biennium 1981-82

Nominations are invited for ICAR Award for Team Research for the biennium 1981 82 The award is given once in two years to interdisciplinary teams of research workers for outstanding research work in the field of agriculture including agricultural economics and statistics animal husbandry and fisheries in the form of a scroll of honour and a medal to each member of the award winning team

All scientists engaged in research in the field of agriculture animal husbandry and fisheries sciences in India shall be eligible for the award The award of each prize shall be made for notable and original interdisciplinary research both fundamental and applied as reflected in books monographs papers or other forms of published account of outstanding research work inventions or discoveries In the case of contributions like new crop varieties or new breeds of animals at least [illegible] years data on the performance of the strains will have to be provided The results of research achieved/contributions made by the teams should be during the five years preceding the year of award

Nominations can be made amongst others by Vice Chancellors of agricultural universities or other universities having a faculty of agricultural or biological sciences Directors of research institutes including Principals of agricultural and veterinary colleges Presidents of scientific establishments in the country such as CSIR BARC etc

Nominations for the award should be supported by a statement of the interdisciplinary team work achieved accomplished or performed by the team which is being nominated and a reasoned justification for the nomination together with the reprints of publications or other supporting data In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained

The last date for receiving nominations for the award is **31st March 1982** Six copies of the proposals on the prescribed proforma for the award should be sent in a sealed cover marked Confidential to Shri Rup Ram Additional Secretary(A) Indian Council of Agricultural Research Krishi Bhawan, New Delhi 110001 The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 1[illegible] cm Applications nominations received without six sets of reprints of publications are liable to be rejected at the scrutiny stage

Jawaharlal Nehru Awards for outstanding Post-graduate Research in Agriculture—1982

The Indian Council of Agricultural Research invites applications from post graduate students who have obtained their Ph D degree during the year 1981 in the fields of agriculture animal sciences (including fisheries) and home science for Jawaharlal Nehru Award for Outstanding Post graduate Research in Agriculture 198[illegible] There will be ten prizes of Rs [illegible] each for outstanding research work of the following nature

Which may have been in the finding a solution to any important practical problem in the field of Agriculture which is likely to have an impact on increasing the production or improving the quality of any important crop for human nutrition or animal productivity or increasing the technological efficiency of any process of economic importance connected with agriculture

Candidates shall be required to submit their applications with the synopsis indicating precisely and in concise form the work they have done The candidates shall also be required to submit to the Council a copy of the thesis submitted by them for the award of the doctoral degree through the guide under whom the work was done who may state the extent to which the work is the candidate's own contribution The certificate awarded to the candidate for Ph D degree may also be sent There is no prescribed proforma for applying for this award Each candidate will be judged on the basis of the originality and the applied value of the investigation as is revealed in the thesis submitted by him In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained

Applications alongwith six copies of synopsis one copy of thesis and six copies of bio data with complete address for correspondence with telegraphic address if possible should be forwarded to Shri Rup Ram Additional Secretary(A) Indian Council of Agricultural Research Krishi Bhawan, New Delhi 110001 through the head of the Institute from which the candidate obtained his doctorate degree so as to reach him not later than **31st March 1982** The award winning thesis will be retained by the Council for record In case the application is not accompanied by a copy of thesis and the required number of synopsis and bio data the application is liable to be rejected at the screening stage

Fakhruddin Ali Ahmed Award for Agricultural Research in Tribal Areas for the Biennium 1980 81

Nominations are invited for the Fakhruddin Ali Ahmed Award for agricultural research in tribal areas for the biennium 198[illegible] 81 Two prizes of the value of Rs 10 0[illegible]0 each in cash or kind or both will be awarded for outstanding original research carried out in the tribal areas in the field of agricultural sciences and animal sciences *including fisheries.*

All *research* workers engaged in research in agriculture, animal husbandry, fisheries and allied sciences in tribal areas (tribal areas for this *purpose are those notified by the Ministry* of Home Affairs, Govt. of India) shall be eligible for the award. The results of research achieved/contributions made during the *five years preceding* the year *of the award* shall *only* be considered for the award. In the case of claim based on evaluation of new varieties/strains the final trials should *have been completed within five years* preceding the year of the award.

Nominations can be made, among others, by the Vice-Chancellors of the agricultural universities or other *universities which have a faculty of* agricultural or biological sciences, Directors of research institutes including Principal of agricultural and veterinary colleges, *President of scientific societies*, academies and heads of principal scientific establishments in the country such as Council of Scientific and *Industrial Research, Bhaba Atomic Research Centre* etc. Scientist(s) may also apply for this award. Each nomination or application for this award should be accompanied by *a detailed statement of work* and attainments of the nominee or applicant as the case may be and a reasoned justification for the nominations *together with the reprints of publications* or other supporting data. Also, a certificate of residence in the tribal area where the work was done should be appended. *It is emphasised that* the award is intended for recognising outstanding research carried out in *tribal areas* and hence the scientist(s) concerned should have lived and carried out *the research in* any of the tribal areas notified by the Ministry of Home Affairs.

The last date for receiving nominations/applications is **31st March, 1982.** *Six copies of the nominations/applications* on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to **Shri Rup Ram** *Additional Secretary, Indian* Council of Agricultural Research, Krishi Bhawan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self addressed *envelope in the size* of 27 cm 12 cm. Applications/nominations received without six sets of reprints of publications are liable to be *rejected at the scrutiny stage.*

Rafi Ahmed Kidwai Memorial Prizes for Agricultural Research for the Biennium 1980-81

Nominations are invited for the Rafi Ahmed Kidwai Memorial Prizes for Agricultural Research for the biennium *1980-81 carrying* an amount of Rs. 10,000, (Rupees ten thousand only) in cash or kind or both, a citation and a certificate.

The award is given once in two years to Indian *scientists for outstanding* research, fundamental or applied, including inventions, discoveries, etc. *leading to results of practical value in* any field or subject within the purview of research in agriculture, animal husbandry and fisheries, including *agricultural economics, agricultural* statistics and nutrition. Only results of researches/contributions made during the five years preceding the year of award *shall* be considered for the award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities, general universities *with faculties of agricultural or biological* sciences, Directors of research institutes, including Principals of agricultural and veterinary colleges, *President of scientific societies* and academies and heads of the principal scientific establishments in the country such as CSIR, BARC etc.

Nominations for the award should be supported by a statement of work, achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with *reprints of publications or other supporting* data. Applications without four sets of reprints of publications are liable to be rejected at the preliminary *scrutiny stage. In all matters, decision* of the Council shall be final and no correspondence on this account will be entertained.

The last date for receiving the *nominations for the award is* **31st March, 1982.** Proposals (in quadruplicate) on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to *Shri* **Rup Ram**, Additional Secretary (A), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001. The copy of the proforma *can be obtained from him by sending* a self addressed envelope in the size of 27 cm×12 cm. Applications/nominations received without four sets of reprints of publications are liable to be *rejected* at the scrutiny stage.

Dr. Rajendra Prasad Award for the Best Original Standard Books [illegible] 1982

Applications are invited for Dr. Rajendra Prasad Award for the year 1982 for standard original books/manuscripts in Hindi on agriculture, animal sciences including fisheries published/written between April 1981 to March 1982. Books written by more than one author can also be considered. Five copies of the books/manuscripts *for the award, may be sent* in a sealed cover marked 'Confidential' to Shri Rup Ram, Additional Secretary-(A), Indian Council of Agricultural Research, *Krishi Bhawan*, New Delhi-110001, latest by **31st March, 1982** in a prescribed form obtainable from him.

In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY-76

P.O. I.I.T., POWAI,
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Advertisement No. A-45/81

Applications are invited for the posts *of Assistant Professor* and *Lecturer in* the Department of *Chemistry* of this Institute. Applicant should give an account of his academic and professional records and a list of research *publications.*

Some posts of Lecturer are reserved for the candidates *belonging to SC/ST* community.

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Applicant should have consistently excellent academic record **with** Doctorate/Master's degree in the appropriate field from a recognised University/Institute. Minimum 5 years experience in *teaching/research/industry.* Specialised knowledge in one or more specified fields. Experience of carrying out independent research and guiding research *desirable*

2. *Lecturer*

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Fields of Specialisation

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The posts are permanent and carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which *at present correspond to those* admissible to Central Government employees stationed at Bombay. Applications should be made on the prescribed form *obtainable* free of *charge from the Registrar of the Institute* by sending a self-addressed envelope of 25 cm x 10 cm size. Indian candidates abroad may apply on plain *paper in duplicate. Candidates* employed in Government/Semi-Government Organisations or Educational Institutes should *apply through* proper channel. Completed application should reach the Resistrar, I.I.T., P.O., I.I.T., Powai, Bombay-400 076 **by 15th January, 1982.**

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22

University

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JANUARY 15, 1982

Prof. U. R. Rao, Director, Indian Space Research Organisation, delivering the convocation address at the Karnatak University, Dharwad.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

CLASSIFIED ADVERTISEMENTS

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NOTICE

Applications are invited from Indian Nationals for the award of the following research scholarships for undertaking research in 'Aquatic Biology' at the Marine Biological Research Stations located at Ratnagiri/Bombay of this University.

Sr. No.	Name of the scholarship	No. of Sch.	Value of the scholarship	Period of Sch.
1	2	3	4	5
1.	Govt. of Maharashtra scholarship for post-graduate studies in Fisheries leading to Ph.D. by research.	2	Rs 250/-P.M. (Fixed)	3 years
2.	Govt. of India, Ministry of Education scholarship for post-graduate studies in Fisheries leading to Ph.D by research.	1	Rs. 250/-P.M. (Fixed)	—do—
3.	Shri Vikaji D.B. Taraporewala scholarship for post-graduate studies in Fisheries leading to M.Sc. (Fisheries) by research.	1	Rs. 100/- P.M. (Fixed)	2 years

Qualifications

Minimum qualifications for the scholarships at Sr. No 1 and 2 are M.Sc. atleast in second class with Zoology, Fisheries or Zoology preferably with special paper in Marine—Biology or Fisheries and for the scholarship at Sr. No 3, B.Sc. with atleast second class in Zoology.

Applications on plain papers giving full particulars alongwith the attested copies of the certificates and the mark-sheets of the graduate and the Post-graduate degree examinations should reach the Registrar, Konkan Krishi Vidyapeeth Dapoli (Pin Code No. 415712) on or before **30th January 1982**.

Candidates will attend interview at their own cost. No correspondence or personal request will be entertained in this behalf.

The candidates, thus, selected for the above scholarships are expected to undertake research work in 'Aquatic Biology' with reference to fisheries at the Marine—Biological Research Stations of this University as assigned to them by the University.

The research work carried out by the scholars may be considered for the award of Ph.D. (Fisheries) and M.Sc. (Fisheries) by research in view of the "Regulation specifying conditions to be fulfilled and procedure to be followed for the award of the Master of Science (Fisheries) and the Doctor of Philosophy (Fisheries) degrees in the faculty of Fisheries, Konkan Krishi Vidyapeeth Dapoli".

P.S. Sawant
REGISTRAR

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Professor : Doctorate degree with good academic record and at least eight years of professional experience of good quality outside the work for the degrees.

OR

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Assistant Professor : Doctorate degree with good academic record and at least three years of professional experience outside the work for the degrees.

OR

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Lecturer : Doctorate degree with good academic record and adequate research experience resulting in research papers of quality outside the work for degrees.

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The Institute has a full-fledged Computer Science Programme with students in B.Tech, M.Mech. and Ph D. (Computer Science) courses. Besides teaching and personal research the Institute encourages its faculty to undertake sponsored reseaich and consultancy project for the industry.

The Institute has a well-established Computer Centre presently having DEC-10 with 30 timesharing terminals including graphic terminals. Many smaller computers are also available at the Centre. The Computer Centre is well-staffed with qualified personnel.

The Campus facilities include a Primary and Higher Secondary School, a Health Centre, Swimming Pool, Shopping Centre, Gliding Club and Housing, accommodation.

The posts are permanent and carry ratirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of stay to Kanpur and back by the shortest route.

In the category Lecturer, one post will be reserved for Scheduled Caste/Scheduled Tribe candidates. In the event of non-availability of suitable SC/ST candidate the reserved posts would be treated as deserved.

In the category of Lecturers, special consideration will be given to disabled persons, possessing the requisite qualifications and whose handicap will in no way be an impediment to their assigned duties.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute sending a self-addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied by a postal order for **Rs 7.50 (Rs. 1.87** for SC/ST candidates).

Applicants who are employed in Government/Semi-Government Organisation or Institutions should send their applications through proper channel, else they will be required to preduce a 'NO OBJECTION CERTIFICATE' from their employers at the time of interview.

Applicants from abroad may apply on plain paper enclosing a complete bio-data and names of three referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P., India on or before **January 31, 1982**.

UNIVERSITY NEWS

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IN THIS ISSUE

Should Higher Education Be Value-Oriented ? 41
What ails Centres of Higher Learning 42

Convocation

Science, technology and society 44
Content in Higher Education 45

Campus News

Review of internal assessment at Osmania 46
UGC approves research project on Uttarakhand 47
Reorgnisation of PAU 48

Agriculture

Method to forecast crop yield 49
Training programme on farm management 50

News from UGC

Depoliticise campus, says UGC Chairman 51
Refresher course for old graduates. 51

Science & Technology

Some notable strides in 1981 in Indian Science 52
Incentives scheme to encourage scientists 52
Conferences, Congresses and Seminars 53
Research in Progress 60
Theses of the Month 62
Additions to AIU Library 64
Classified Advertisements 65

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

The Unquiet Campus

Travails of Men at the Top

Amrik Singh*

A by-election was pending in a State. The Chief Minister happened to go on a visit to a town which was also the seat of a university. The students thought that this was too good an opportunity to miss. They gheraoed the Chief Minister and demanded that their right to cheat in examinations be accepted. Not knowing how to deal with the situation, the Chief Minister told the vice-chancellor not to take notice of what the students do "for a few weeks" till the by-election was over. Everybody in the town knew what was said and the circumstances in which it was said. But nobody was prepared to talk about it for "obvious" reasons.

Maligned

For years together, vice-chancellors have been a much maligned lot. It is true that quite a few of the things that some of them do are indefensible. Not an inconsiderable number among them are appointed not because they are the best available but for reasons that cannot bear too close a scrutiny. In any case the vice-chancellor's job has become less and less attractive with the passage of time. The number of those who decline the offer to head a university is not so small either. Some do not find their work rewarding. In this sense there is a crisis of leadership in the universities which has been aggravated by constant political interference.

If the sacking of vice-chancellors was a solution to the problems of university governance, we would have solved the problem by now. Recently, the vice-chancellor of a university in Madhya Pradesh was sacked by the Chief Minister. That a Chief Minister can sack a vice-chancellor but not the peon who sits outside his door is beside the point. Over the years we have evolved a system in which excessive security for ordinary employees and excessive insecurity for vice-chancellors has come to be accepted as a way of life. In one form or another sacking has been practised for almost two decades. Sometimes it is done clumsily; more often it is done with a certain political finesse ensuring that the politicians get what they want without causing much damage to the institution.

In this connection, it is important to understand the role of universities. They perform a number of functions, the main being teaching and research. They also have a subsidiary, though crucial function which is to contain youth discontent. Their ability to do this has, however, become blunted in recent years. Along with it, there has been a decline in their capacity to undertake teaching and research.

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*Secretary, AIU, New Delhi.

Teaching and research can only be undertaken in a calm and civilized atmosphere. In the present situation, this is not possible and hence the universities are gradually being reduced to the level of having to do "baby sitting" for thousands of students who, if left to their own devices, could create a great deal of trouble.

In plain words, what the vice-chancellors and others in the educational institutions are doing is to act as a buffer between the political bosses and raw student power. This is an extraordinarily difficult role to play and the marvel is how in institution after institution the educational leaders have year after year continued to play this role.

How unenviable the role of an educational administrator is may be seen from the fact that all political and administrative power is with the political bosses. The educational administrator, be he a vice-chancellor or a principal has no independent administrative power. Whatever he has is either derived from political bosses or is made available to him for those few hours or days when there is a law and order problem. The definition of what constitutes a law and order problem is not that of the educational administrator. It is up to the political bosses or other administrative authorities working under them to decide when a situation calls for administrative intervention.

What is the educational administrator to do in such a situation ? If he is a man of some moral stature, the students are prepared to listen to him. If he is a political appointee (and more and more of them are tending to be that now-a-days), his words carry no weight with the students. What happens in that situation is what we witness every day.

Let us not overlook the irony of the situation. The confrontation tends to be essentially political in character, the political bosses on one side and the resentful students on the other. The educational administrators are caught in the middle. They are expected to contain student resentment without having the means to do so. If the resentment bursts into the open and there is a law and order situation, it is for the political bosses to decide when to intervene and when not to intervene. If they intervene, the educational administrator is safe. If they do not intervene or intervene belatedly or not decisively enough, the educational administrator gets pushed about, kicked, beaten and even murdered. The recent incident in Shillong is still fresh in one's memory.

The educational administrators are of course, not angels by any means. Quite a number of them are a busy and manipulative lot. They are in their positions mostly because they have utilized the right connexions and are prepared to play the game. The politicians too choose to patronize those who are willing to play the game. The fact that they are at a serious disadvantage in this game does not bother most of them. Only a very small number of them opt out and stay on in teaching posts without being seduced by the glamour of a vice-chancellorship.

Since most of them play the game, why is it necessary for the politicians to seek to humiliate them ? The answer to this question is that this is incidental. The politician is not interested in humiliating anyone. He only wants that the game be played according to his rules. If some people resist and others play truant, so much the worse for them. They have then to be dealt with suitably.

But there are two things that the politicians forget in this situation. One is that a vice-chancellor, whatever else might be said about him or against him, symbolizes the university. When he is humiliated, the institution loses its prestige and credibility. If the universities were rated much higher in the social scale of values a couple of decades ago and if there has been an unmistakable erosion of their prestige today, it is largely due to the way people heading the universities have been appointed and treated.

Sometimes the humiliation is public, sometimes it is private. At other times it may not necessarily be an act of deliberate humiliation ; it may simply mean a situation in which the head of the institution is prevented from being effective. Some individuals who do not like this situation may choose to get out. But then those who succeed them are likely to be much inferior to those who leave. When this process is repeated year after year; we get to a situation where we are today.

A second point that has to be considered is what will happen when that stage is reached when the educational administrators totally cease to be effective. The politicians will then have to deal with the students directly. The beginnings of such a development can be seen.

Blunt

At present students have little confidence in those entrusted to look after them. Sometimes they say so bluntly. Whether they say so or not it is usually implied in the way they deal with their principals and vice-chancellors, whom they do not always regard as man of honour.

The issue here is not whether this is right or wrong; but this is the way the students see them. If this process continues to gather momentum, and nothing seems to be happening to moderate or even reverse this process, a stage will be reached when those who sack or otherwise humiliate vice-chancellors will find that it was now their turn to be at the receiving end. □

[*Courtesy : The Statesman*]

Should Higher Education Be Value-Oriented?

R. M. Kalra*

Reading some news report recently was really depressing and the following questions arose in my mind :

What are our youth learning in the colleges & Universities?

Any values! Any skills! Besides knowledge.

It is my conviction that modern student youth generation is wiser and allergic to hypocracy. He is an epitome of courage over cowardice, of adventure over the love of ease. We, as educators, should understand student youth especially, their role as nation builders. To achieve the above objective, we have to set and exemplify positive values and strong ideals.

To quote William K. Webb, "A strong ideal can capture an imagination and control a life. Just one clear picture planted in the mind and heart of youth is all it takes to change an apathetic man to acts of consecration that kindle strife or call for peace, depending on the kind of passioned truth the picture makes".

In order to have a strong ideal, it is imperative to have strong values. In my opinion our student youth are in the midst of tremendous 'values' crisis. Seeking more of what western technology and culture can produce, some of these students push for the adoption of western ideas and practices. They are faced with the choice, either staying as they are or adopting the western value system in total and rejecting everything they have known. This confusion and conflict results in literally tearing apart the culture of our youth.

Does it have to be 'either or' choice? Isn't it possible for youth to amalgamate the best ideas from their own culture and the west also?

The University teachers today face an increasing number of curriculum decisions. An avalanche of knowledge in all academic areas, especially the sciences, have thundered upon man in the last 20 years. How can university teachers supply meaningful educational experiences for youth in the light of this explosion of knowledge and value crisis? A promising approach for dealing with the emerging value crisis among our students is to teach them a process and a set of criteria by which they can arrive at and evaluate the soundness of their own values. In order to impart purposeful and relevant education to our students with reference to value crisis and explosion in knowledge, it may be imperative to define and discuss the term 'Values'.

Values

Operationally, the concept of values may be defined as 'factors which affect human behaviour'. Intellectually values may be defined as 'concept which is accepted by the sub-conscious mind, is understood by all and perceived by the individual.

Furthermore, the following pertinent question concerning the values arises:

(i) Do the Values themselves change? Or is it only our interpretation of constant values that change? One can assume I think, that abstract values such as tolerance, self-respect, love, truth and patriotism remain constant. However, world events may bring about changes in priorities. For example, during the Vietnam War in the United States, Draft dodging was considered by many as a sign of patriotism in comparison to going to war. Also, science once regarded as wholly beneficial has undergone a subtle change in recent years. With its ramifications affecting the social, educational and political issues of our times, science has acquired an unsavoury characterisation. The fact that we have the technical know-how to destroy the world quickly through atomic war or slowly through pollution and environmental abuse does not improve science's image. Thus we have achieved the technology of destroying the world, but have not developed human values which may control the above destruction. Thus we feel threatened.

To summarise the above conviction thus, there is a great danger in regarding science as a singular value system. If the weakness of various ethnic cultures is their resistance to scientific thinking then there has been equal stubborness on the part of Western scientific culture to be over committed to technology. The historical records of all great civilizations show that cultural idealism and technology must exist side by side.

The great engineering master pieces in all ethnic cultures testify that science and technology are thousands of years old. The rise of the great civilizations was not brought about by technology alone, but by radically new social inventions.

Evidently both our society and its values are rapidly changing. Modern youth question the values of their teachers, parents and leaders. If we are to cope up with these changing attitudes it is imperative to discuss the importance of values in our higher education.

University education & value questions

To determine the importance of values in higher education we must examine present teaching methods and the educational environment in our institutions of higher learning. What actually happens in a college or in a university determines values rather than how students are taught. For example, when democracy is under discussion in a political science class, democracy must be evident

(*Contd. on page 43*)

**Deputy Educational Adviser (Youth Services), Ministry of Education & Culture, New Delhi. Opinions expressed in the article are that of author and do not necessarily reflect the policies of the institution where he is employed.*

What ails Centres of Higher Learning

S. K. Banerji*

Education and educators everywhere generally have a low priority in social structures. In India, this has become all the more apparent with the situation being what it is in a large number of universities. They have become more of a source of trouble to the public at large than anything else. This tends to make them forget "man" is the most important asset of a nation, and the making of this "man" is the most important activity that a nation can have.

As one involved in higher education for the past three decades, I feel it is time we looked objectively into the "malaise" prevalent in these centres of higher learning. The present effort is directed at identifying some of the possible causes and borrowing an engineering term—"a problem identified is half solved".

Let's start with admissions. It is time we had a fresh look at the "open door" admissions policy. In the situation obtaining in India where the parents wholly finance higher education of their wards unmotivated and even "anti-motivated" input gets into the universities. This is perhaps the biggest single factor for most of the problems the universities face. In none of the centres of higher learning whose products are an international commodity is this policy followed. This is one of the main reasons why they are "islands of excellence" in an otherwise "sea of misery".

If one looks at the faculty commitment, one finds that good teaching and good research seldom gets recognition. I have always felt the "teacher" and the "student" do not belong to two different communities since in my opinion a teacher is no teacher who is not a student. Since good teaching and good research goes unrecognised—coupled with the fact that in today's scene it is "manipulators" and "teacher-politicians"—who appear to rule the "roost"—it creates little enthusiasm in the teaching community. The faculty, particularly the young, is quick to realise that good teaching is not paying. In this way the "studentship" of the faculty makes it exit, and the universities do not any longer remain seats of higher learning and "academics" takes a back seat.

This percolates down to the students who, by and large, has seen that at the school level it is the "cue-seekers" as against the "cuedeaf" who have made the grade. Thus the two main components of higher education become "negatively" motivated.

If we now examine the course material, it will be found that the axiom 'mediocrity feels secure only when it takes refuge in tradition" aptly describes the actual situation prevailing today.

More often than not, small tinkering with the course material, goes by the name of updating of courses. The 'drab' and "meaningless" laboratory courses are possibly half a century old. The recommendations for the change from repetitive' nature of experimentation to 'project-oriented' labs appears to be gathering dust on the shelves of the powers that be. This benumbs whatever little interest and initiative the students have. This only serves to waste a large chunk of student contact hours. The departments functioning more or less, as water tight 'kingdoms' may perhaps be finding this as a 'dubious' way to increase the faculty, in terms of numbers.

As one, with a large experience as Registrar, Examinations at BITS, and in the UGC Examination Reform Implementation Committee and elsewhere, it was a revelation that, even today:

(i) There is no dearth of people who would still 'swear' that they can differentiate between 59 and 60, for an answer script. They are perhaps unaware of the fact that we, teachers, neither have the competence nor the sophistication for such a fine division.

(ii) Till a few years ago one of the institutes of higher learning was still following a 101-point scale and the final verdict of a student's performance was still being given, largely, on the basis of a single end-of-the-term examination.

The process of a 'final and irrevocable judgement on the basis of one end-of-the-term examination, naturally promoted development and ramification of the 'technology of copying' and its associated problems.

Whereas the UGC, conscious of its responsibilities, has done greatly, often going out-of-the-way, in assisting examination reform in the universities, the same cannot be said of these seats of higher learning. "Educational Measurements" are rarely used as a tool for better teaching.

If we now look closely into the research activities, it will be apparent that it is being pursued only with one aim, and that is to produce a doctoral dissertation. It is generally 'wholly' unconnected with life's problems and is usually 'repetitive' work—an extra-polation of the 'guru's work or, (as corrected by a friend of mine at the Bhabha Atomic Research Centre, Bombay), grandguru's work.

I firmly believe that, in a poor country like ours, we can ill-afford this luxury. In my opinion, a Ph.D. thesis must largely aim at (i) helping in some way, solving a real life problem and thus contributing to the nation's welfare; (ii) a student being able to get a meaningful employment on the basis of his Ph.D. thesis alone.

As referred to earlier, departments being watertight compartments, there is usually very little give-and-take or any inter-disciplinary activity, worth the

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Prof. of Chemistry, BITS, Pilani.

name. There is often, not only, inter-departmental duplication of efforts and equipment but even intra-departmental duplication. It is often true, that the "eminence" of a don appears to be measured more in terms of the sophisticated instruments that he possesses, for his exclusive use, (if any) than his actual 'real' contribution.

To neutralise this, the concept of "central laboratory facilities" was brought in. If one delves deeply into the working of these, one finds that in a claim for authorship in the publications personal influence works instead of the normal routine. I have always felt that as a nation we have yet to develop the 'team spirit' culture as against the 'individualistic cult'.

It is also true, that the universities cannot be considered in isolation. 'Idealism' as a social goal has largely disappeared. 'Idealism' or call it by whatever name you like, in my opinion, is very necessary for the growth of young minds, and this is just not there, either in the universities or in the social fabric. Today even 'need-based friendship' is being talked of. This coupled with the negative dividends from 'good studentship', has vitiated, the atmosphere almost beyond repair.

Thus, if we comprehensively sum up the functions that the universities are performing, as of now, it is three-fold :

(i) Baby sitting—trying to manage 'unmanageable' boys and girls;

(ii) Increasing the marriage market potential of the input material;

(iii) Providing a coarse-filter, for the employer for facilitating short-listing.

One will thus see that 'education' does not feature anywhere in the scheme of things.

For too long a time, we have been indifferent spectators to the growing indiscipline and "wastefulness" of these centres of higher learning, on which the nation is spending large sums of money and effort—directly or indirectly. The picture appears to be rather gloomy, but I have always felt the way the Italian leader Gramsci that "we must fight the pessimism of the mind with the optimism of the will."

Some of the immediate directions in which the rectification lies are :

(i) Taking a fresh look at the "open door" policy of admission in the two-year higher degree, as a first step. This needs a strong determination and will to resist all types cf pressures;

(ii) Modifying the system of judgment on the basis of an end-of-the term examination;

(iii) More meaningful programmes of teaching and laboratory work ;

(ii) Smaller sized universities and viable sized colleges.

This, along with greater sense of 'generosity' on the part of the senior faculty towards their juniors, will help bring in an academic atmosphere of co-operation for the betterment of all. ☐

(*Courtesy : The Hindustan Times*)

Should Higher Education Be Value Oriented ?

(*Continued from page* 41)

in the actual management of the class and in the operation of the College.

The concept of 'human rights' being taught in a graduate class where there are no individual rights, reduces the credibility and the concept of 'value question' to another educational fad. The role of the university teacher is at the centre of our concern for the values in the curriculum. Should they be taught by him and if so whose value does he impose, his own or those from higher authority? To a larger extent values are acquired through example not precept. Values are personal and cannot be imposed on a youth unless he understands them. A youth should be given enough choices and be allowed to make his own decisions.

The college/university is one of the most appropriate places where values concept can be fully expanded. These should provide environment for our youth to develop some of the following qualities: (i) trusting (ii) honesty (iii) patience (iv) flexibility (v) understanding (vi) self-respect (vii) respect for others. However the question now arises. Should the development of the above mentioned qualities be at the expense of the mastery of the subject matter?

Some educators feel that the college/university could provide value lessons, only at the expense of factual knowledge. Others feel that 'value' questions should be incidental. In my opinion it is quite difficult, but possible, to polarise factual knowledge and human growth. It is not an 'either or' question but both processes should work hand in hand. We as educators, should not lay emphasis on one aspect at the cost of another. Our educational institutions of higher learning have a responsibility to the community to foster community values i.e. to lead our youth to understand to accept the values accepted by the society within which the college or university operates. Socially accepted value system, may be developed through self-discovery or yoga. This implies the designing of a university curriculum which caters to the needs of the community and overcomes the conventional gap between knowledge and life situations. Thus the philosophy of any university programme may be based on a system of education that will enable our student youth to develop skills, and acquire knowledge, values which will produce a better way of life for them and which will make it possible to lead them to the discovery skills—values so necessary if they are to use their knowledge.

To conclude : let us think, organise and strive together so that students in developing countries may make some valuable contributions to our great country. ☐

Science, Technology and Society

Convocation

During the last quarter of century alone, we have increased our speed of travel by almost a factor of 100, our speed of communication by a factor of a million, our ability to handle, digest and disseminate new information by a factor of 100. The quantum of scientific information which took almost 10 years to gather in the beginning of this century now takes hardly 10 months. The single factor which has been responsible for such a tremendous progress in human civilisation and which differentiates it from other anthropological species is undoubtedly the quality of "Extra-genetic transmission of experience." It is this quality which is at the root of human ability to make technological progress and utilise the experience of previous generations i.e. vectorialise the technological development and growth.

With over 70% of mankind surviving below the poverty line, only the purposeful use of science and technology can save mankind from the "doomsday syndrome" predicted by the club of Rome. The release of energy from the atom, the truly remarkable growth of electronics and man's ability to operate both in and from the outerspace constitute the three most significant revolutionary achievements of this era, which for the first time provide a new beacon of hope to all developing countries wishing to advance scientifically and technologically. Today, a variety of alternate sources of energy including nuclear energy are available. New sources of energy are being continuously identified, some of which may become economically viable. Rapid advances in agricultural technology have led to better seeds and fertilizers ushering the green revolution. Developments in the fields of electronics, avionics and automation during the last 30 years have enabled man to travel at the rate of 18,000 miles per hour. It is obvious that a quantitative transformation of the society can occur and quality of life style on this earth can be improved only through purposeful use of science and technology based on sound economic and scientific evaluation.

If science and technology are essential to the very survival of human species on this globe, is it not necessary to ensure that the society at large recognises that science and technology is not something outside the mainstream of life but is a part of life and permeates all of its activity? The inculcation of the true scientific spirit and ethos, the spirit of enquiry and subjecting all findings to scientific rigour prior to their acceptance, clear understanding of the cause and effect, are today's primary requirement if we are to overcome the fatalistic attitude of our society which readily accepts all adversity as just a part of life, an act of god and written in their horoscope. The essence of scientific spirit lies not in blind faith, dogmas and empiricism but is based on logical reasoning, scientific analysis and a rational understanding of causal relationships.

It is not my contention that every scientific and technological development has necessarily contributed to the betterment of mainkind. Nevertheless, science cannot be held responsible for the wilful perversion of science for destructive purposes. Science and Technology is like a double edged sword. As Louis Fischer put it "The miracle of science is at our disposal to use or abuse, to make or to mar. With science we may lay civilization in ruins or enter into a period of plenty and well being, the like of which has never been experienced by mankind". Every new technological innovation which can solve the problems of the world, is also a potential tool of large scale destruction.

People loosely talk of "life boat ethics" and "principle of triage" or selective abandonment of the helpless as solutions to the problem of the world, without realising as Willy Brandt put it, "it makes no difference whether a man is killed in war or is condemned to starve to death by the indifference of others". It is clear that even though science and technology is . absolutely essential for achieving basic material progress, and to improve the quality of life on earth, without corresponding improvement in cultural, ethical and moral values, the society will be reduced to the status of a man without a soul. To quote Sir S. Radhakrishnan "If science is perverted from its natural purpose and is used for private profit and public destruction, if the political world is anarchial, if scientific weapons are used for destruction and human slaughter elevated into a cardinal centre, it is not the fault of science. The present troubles of the world are due to science having advanced faster than morality. The problem of our age in the reconciliation of science and wisdom in a vital harmory".

Whereas fundamentals of science and true scientific spirit are expected to be imparted through university education, the rigid compartmentalisation of science prevalent in the Universities does not provide the necessary atmosphere for achieving this objective. Pandit Jawaharlal Nehru used to say "All is well with the nation if all is well with the Universities". It is no longer possible for a Physicist, a Chemist, a Biologist or an Economist to sit in isolation and still meaningfully contribute to the growth of science and technology. Whether in basic or in applied sciences, a clear understanding of the interdisciplinary character is vital even to understand and appreciate the cybernatic relationships embodied in scientific as well as social systems. The Universities have a fundamental role to play in teaching the students to take a hollistic approach to science and kindle their basic powers of reasoning and thinking so that they may grasp the excitement of science and its diversity and begin to truly appreciate and love the supreme nature. Only then the future generation would be fully equipped to meaningfully participate in the "march of science, which is probably mankind's greatest enterprise today".

For centuries high sounding philosophies have been quoted, cultural heritage has been used as an excuse to keep men and societies under the shackle of poverty. Far from exploring the uses of metals, thundered Seneca, philosophy teaches us to live without materials and mechanics. He denounced luxury while taking his ease in the gardens of Lucullus. We have always been told that "there is richness in poverty". Only the unemployed knows that this richness cannot fill his empty stomach.

Without loosing spiritual values, problems of poverty, hunger and unemployment can be solved, not by purblind ideological slogans, not by pontifical philosophical sermons but by conscious, dedicated, sincere and systematic effort, long range planning and implementation to tackle the very root of these diseases.

(Excerpts from the convocation address delivered by Prof. U.R. Rao, Director, Indian Space Research Organisation, at the Karnatak University, Dharwad.)

Content in Higher Education

Today we are a free nation. This freedom has awakened the aspirations of our people for a better life. In order therefore to make our political freedom more meaningful it is necessary for us to obtain for all our people social and economic justice within the shortest possible time. While much has been achieved, we still have a very long way to go to achieve the objective of eradicating poverty and establishing a more egalitarian society. Who else is better suited to perform this task than our educated youth destined to be the future leaders of India?

One of the means of accelerating the process of development is the spread of education to the masses on right lines. Democratisation of access to education is a very desirable goal. It is by no means the ultimate. We have to lay greater stress on improvement of the quality of education enveloping all aspects and all sections of our people.

To make good the accumulated neglect there must be a conscious effort to improve the quality of education imparted to the weaker sections of the community and our rural population. Where necessary we should introduce academic reforms which will ensure that education becomes relevant to the needs of the learners and the environment in which it is imparted. Remedial and enrichment programmes must be available to ensure that first generation learners and weaker students are adequately helped. The test of a good educational system is not so much its ability to impart education to the talented or above average students but its capacity to bring up the relatively weak and backward students to the desired levels which in this age of fierce competition must be high; high not in the percentage of marks attained through dilution of standards but in content.

There is no denying the fact that good University education is a powerful tool of national development as it provides the right kind of leadership. The quality of higher education is of vital significance. This quality in its turn depends to a great extent on the teachers. To improve standards in higher education the teachers must cultivate an idealism which would include a passionate love of learning, an indefatigable pursuit of excellence, a commitment to professional codes of conduct and a continuing and deep concern for the welfare of the students committed to their care. Our educational system can only serve as an instrument of change to meet the needs and aspirations of our people as a nation, if our teachers and students accept a commitment to honour such accepted national goals, as democracy, secularism and socialism. Our teachers, as a body, should be committed to these and other value systems which are our sacred heritage.

Higher education is not merely reading and cramming a few books or selected portions of books and obtaining a degree. It is not stuffing the brain temporarily but training the same for lasting effect and thirst for knowledge. University education must awaken curiosity, promote self-study habits, sharpen intellectual faculties, develop problem solving abilities, inculcate values and attitudes which commit youngmen and women to humanism, pursuit of truth and excellence, freedom, equality, justice and mutual interdependence of the individual and the society.

In the rapidly changing contemporary world, universities are undergoing a profound change in their scope, functions and organisations and are in the process of rapid evolution. Their tasks are no longer confined to the traditional functions of merely teaching and examining. While they are assuming new functions the older ones are increasing in range, depth and complexity. We have to keep pace with this change if we are not to be left out of the race.

We have given a lot of attention to improving the system of higher education. Unfortunately, little or no thought has been given as to how best teaching

(Contd. on page 59)

Campus News

Review of internal assessment at Osmania

The Academic Council of Osmania University has set up a committee to review the existing internal assessment system followed by the University. The committee will also explore the possibilities of decentralising the system and suggest modifications.

The Academic Council discussed in detail all aspects of internal assessment and the question of reverting to annual system of examination for post-graduate courses. Many members expressed their views against the continuance of the internal assessment because the teachers were subjected to various pressures. Some felt the good students also suffered because of this. Members who supported said the teacher could assess the real merit of the students through internal assessment and the previous system was also not cent per cent foolproof.

The Vice-Chancellor, Prof. G. Ram Reddy, who presided said that many universities including some in Andhra State had experimented with the internal assessment system and have come to follow the system which was now practised by Osmania University. He said the University Grants Commission was favourable for the continuance of the internal assessment system as can be seen by the guidelines issued by the UGC.

He suggested the setting up of a committee including representatives of the government and UGC to study the various aspects of the internal assessment and make suggestions.

The Academic Council also discussed about discontinuing the objective type of question paper for B.Sc. students and has referred the issue to the Science faculty for consideration. The Academic Council also referred to the science faculty the reintroduction of M. Phil courses in sciences.

Pollution control

Mr. B.N. Raman, Principal Secretary to Government of Andhra Pradesh has called upon the scientists to utilise the available scientific knowledge to curb pollution. He said adequate technology was available in the country to control pollution but it was very often not utilised by the concerned agencies, he observed.

Mr. Raman inaugurated a three-day National Seminar on "Impact of Pollution on Ground Water Quality and its Control" organised by the Civil Engineering Department of Osmania University in collaboration with the Departments of Atomic Energy, Department of Environment, Government of India and other State Departments. Mr Raman said the problems of pollution was due to many factors including population explosion. He said the people should be educated about the health hazards through extension work.

Dr. Harinarain, Director, NGRI, in his keynote address said the ground water available in the Ganga basin was enough to double our food production to 300 million tonnes per year. He said only seven per cent of our potable water was disease free. Citing the example of Banaras city and the Ganga river pollution, he said certain vested interests and social customs came in the way of fighting pollution.

Mr Raja Rao, special secretary (Technical), said the pollution control boards set up by State Governments were doing a good job. He said the recommendations of the seminar should be given wide publicity through mass media to bring forth stringent laws to curb pollution.

Prof. V.G. Palnitkar, Convenor of the seminar, talking about the highlights of the seminar said 43 papers would be presented. The seminar will discuss the following topics: Disposal practices of pollutants; isotope/conventional techniques; control and management pollution.

Plea for universities of health science

Dr P.N. Chuttani, a noted physician and a former Director of Post-graduate Institute of Medical Sciences (P.G.I.) Chandigarh made a fervent plea for separate Universities of Health Science on the pattern of the Agricultural Universities in India. He said that the present system where the medical colleges were controlled by service departments like the Health Department was not conducive to the development of medical sciences. He said that India is the only important country in the world where medical colleges were run by health departments.

Dr Chuttani made this plea while inaugurating the 27th Annual Conference of the Association of Physiologists and Pharmacologists of India at the Punjab Agricultural University on December 27, 1981. About 250 scientists from all over India attended the conference. Dr Chuttani pleaded for better deal for the scientists working in the basic fields. The present salaries of basic scientists like physiologists and pharmacologists even in institutions like PGI, he said, were not enough to attract persons of merit. He further, warned against the rapid pace of population increase in India and said that we should emulate China which had been able to bring down its rate of increase to only 15 per thousand.

Dr Sukhdev Singh, Vice-Chancellor of the Punjab Agricultural University who presided said that the health of the plants, soil, animals and human beings formed links in one chain and any weakness anywhere affected the strength of the chain. The poor health of soil caused by deficiencies of micronutrients affected the health of the plants which in turn affected the health of animals and human beings. Physiologists and pharmacologists were comrades in arms with agriculture and veterinary scientists. They neeed support from each other for which proper linkages should be developed. A step in this direction had been taken by holding this Conference in an agricultural university for the first time ever, he added.

Surveys of historical sites

The Department of Ancient Indian History and Epigraphy, Karnatak University launched in the recent past extensive surveys of ancient historical sites in north Karnatak. Dr. S.H. Ritti, Professor and Head of the Department alongwith Shri R. N. Shadakshariah and Shri S. V. P. Halakatti explored several such sites and discovered evidences of pre-historic and cultural phases.

Shri. R.M. Shadakshariah, Research Fellow in the Department, has discovered many pre and proto-historic sites such as Middle palaeolithic, Mesolithic and Early historic sites. Of the sculptures and temples of the medieval period, a few are noteworthy for their iconographic traits, e.g. Vishnu as Jaina Yaksha form and the dvibhuja Ganesha form.

Shri S.V.P. Halakatti surveyed the ancient site at Vasana, Dharwad district and discovered a rare Satavahana pillar inscription mentioning the name of the Satavahana King Vasisthiputra Pulumavi as well as the remains of an early historical site with brick structural remains. Further explorations by a team led to the discovery of some palaeoliths and neoliths also indicating the prehistoric and cultural phase of the site. A temple with Sata Shikhara of c. 11th cent A.D. the only one of its kind so far known in North Karnataka was also noticed.

Bharti chair in BHU

The Banaras Hindu University (BHU) will soon set up a Subramanyam Bharti chair, according to the BHU Vice-Chancellor Prof Iqbal Narayan. Inaugurating Tamil language classes at the Rajasthan University he said that Bharti was a symbol of national unity and crushed for upliftment of the oppressed.

The convener of the Subramanyam Bharti Birth Centenary Celebration Committee, Mr Ved Vyas said that a year long celebrations including seminars and symposia would be held in Rajasthan.

Fellowship to Tamil scholars offered

The International School of Dravidian Lingutstics having its headquarters at Trivandrum has decided to award senior fellowship to two selected Tamil scholars for advanced research in Tamil linguistics. The aim of the school was to activise serious research on international level on Dravidian languages and linguistics.

The school had launched a pilot linguistic survey in the Union Territory of Pondicherry to identify various dialects in the territory.

The school would soon organise an exhibition at Pondicherry on the ancient Tamil civilisation.

Descendants of *Indus civilisation*

The descendants of the people who lived at Mohenjodaro still exist, according to two Pakistani archaeologists.

In a book "Mohenjodaro A 5000-year-old Legacy", published by UNESCO, Mr Khurshid Hasan Shaikh and Mr Syed M. Ashfque say the Mohanas, "a minorty tribe of fishermen" found around the Idus river, near the Mohenjodaro excavation site, are the descendants of the Indus Valley Civilisation.

The archaeologists say they speak the vernacular Sindhi with many peculiar words. They have "certain cultural traits" which set them apart from the rest of the rural population in the area.

The Mohanas earn their livelihood by fishing and hunting waterfowl and as village ferrymen.

Mohana boatmen still hold an annual festival at the Indus river point just opposite the Mohenjodaro excavation site. Their songs, dances, boat racing and long-distance swimming competitions at the festival are reminiscent of the seafaring original Mohenjodaro people,.

The name Mohana also has some affinity with "Melluha" the Mesopotamian name for the Indus Valley Civilisation empire. The flat-bottomed sail carfts of the Mohanas resemble the images of boats on some of the clay seals excavated at Mohenjodaro. The authors suggested a more detailed ethnological study.

Concessions to blind students

Blind students undergoing courses in the departments of Madras University will be exempted from paying tuition fees from now on. Dr M. Santappa Vice-Chancellor said that blind students were exempted from paying examination fees as early as 1956 and the concession had now been extended to tuition fees. The University has also decided to reserve three per cent of seats in all courses for the physically handicapped.

UGC approves research project on Uttarakhand

The University Grants' Commission has approved a research project on archaeological studies of the Uttarakhand region in U.P., following the discovery of interesting links between the hilly region of Garhwal and the Sub-Himalayan plains. The Uttarakhand region comprises eight hill districts of Pauri, Tehri, Chamoli, Uttarkashi, Dehra Dun, Almora Naini Tal and Pithoragarh. The studies will also cover adjoining areas. One of the important discoveries made in the region is that of Painted Grey Ware (PGW) which is now to have been associated with the Vedic period. The find was made during excavations at Thapli, which is situated on the bank of Alaknanda, opposite the town of Srinagar in the Garhwal district of U.P.

According to historians, the occurrence of the PGW in the Alaknanda Valley shows the penetration of the Aryans there as early as the first half of the

1st Millennium B.C. Excavations at Ranihat near Srinagar in Garhwal have shown that, people living there had knowledge of the use of pottery, metal smelting and brick making as early as the 6th century B.C.; The research project, approved by the UGC for a period of five years, has been drawn up by Dr K.P. Nautiyal of Garhwal University. This consists of a three-directional exploration with Srinagar as the starting point near which the Painted Grey Ware was discovered. The exploration will be carried out downstream towards Hardwar, upstream towards Badrinath and towards Kotdwara in Ganga valley.

Role of geographers

Prof Nural Hasan, Vice President of the CSIR, in augurating the Third Indian Geography Congress organised by the National Associates of Geographers of India at New Delhi recently, outlined the areas requiring special attention.

He called for a rational land use as indiscriminate deforestation led to climatic abnormalities, soil erosion, growing salinity and nutrition and water management problems. Perhaps a better understanding ground water, glaciers and water resources in general would enable taking up appropriate measures of water management and conservation.

He highlighted the necessity of study of earthquakes and increasing our knowledge of the same. He hoped universities and institutes in India would apply their resources to a study of the problems of the sea in a greater measure so as to be able to exploit the marine resources.

Prof. Moonis Raza delivered the presidential address to the Congress.

Special development grant

The Government of Karnataka sanctioned Rs. 20 lakhs to Karnatak University during the month of October, 1981 as a Special Development Grant for (i) improvement of library facilities in the University College of Law, Dharwad; (ii) improvement of laboratories of postgraduate science departments and Karnatak Science College, Dharwad; and other specified purposes and (iii) construction of water storage tank on the university campus.

SC/ST cell at Karnatak

The Karnatak University has created a special cell to look into the welfare of SC/ST employees and the students of the university. The cell also ascertains that Government orders issued from time to time regarding reservation are complied with.

Soviet team at Panjab University

A Soviet team led by Mr A.G. Bulychov, Deputy Chairman of the Committee of the Youth Organisation, USSR, and Mr Z.G. Bukhareav, Director, Palace of Culture of Youth, USSR, visited a camp at village Dhanas organised by the NSS Unit of Panjab University. The team went round an exhibition of handicrafts arranged at the site of the camp. Earlier, the team visited an exhibition of pictures depicting NSS activities.

Mr Kireet Joshi, Education Adviser, Ministry of Education & Culture, Government of India, who accompanied the delegation, lauded the work of the campers. Prof. R.C. Paul, Vice-Chancellor, Panjab University, welcomed the visitors from Russia.

UGC seminar on art history of Andhra desa

Under COHSSIP of UGC, the Faculty of History and Archaeology of Besant Theosophical College, Madanapalle (AP), will hold a seminar on 13th and 14th February 1982 on Art History of Andhra Desa. The seminar aims at an in-depth study of art tradition of Andhra Desa. beginning from pre-historic times down to vijaynagar times. Special emphasis will be on Temple Art. Reputed Art Historians of Andhra will be participating in the seminar.

ISI Golden Jubilee

The Indian Statistical Institute is celebrating the golden jubilee of its foundation this year. The celebrations will be mainly observed through a series of conferences spread over a period of ten months. Many distinguished scientists from India and abroad are expected to take part in these conferences.

Besides, it has also been decided to institute a Mahalarobis Memorial Lecture series under which an eminent seientist will be inivited every two years to deliver lectures on one of the subjects of interest to the Institute.

The Institute has done pioneering work in areas like large scale sample surveys, statistical inference and multivariate analysis and design of experiments. Among other activities, the Institute continues to do vigorous work in computer software and hardware, pattern recognition and development of statistical programe packages. The Institute has received world wide recognition both for its research and its teching and training.

Reorganisation of PAU recommended

The three-man high-level committee, set up by the Board of Management of Pujab Agricultural Universtiy, has suggested the establishment of three new colleges—the college of Plant-Breeding and Genetics, the College of Economic Development and Planning and the College of Food Technology and Processing—by reorganising various departments of the university in order to bring about greater efficiency in their functioning.

The College of Veterinary Science should be renamed as the College of Veterinary Science and Animal Husbandry by the integration of the Department of Animal Science with the College of Veterinary Science.

Delhi University to introduce revaluation

The Academic Council of Delhi University recently decided to introduce revaluation of answer sheets from the examination to be held in April 1982. A working committee is likely to be constituted to work out the modalifies of the revaluation system to prevent abuse.

The Academic Council has also accepted the report of the examination reforms committee suggesting measures for checking discrepancies in the evaluation system.

The facility of revaluation exists in some univeristies already.

University work compulsory for Maharashtra teachers

It is understood that the State Government of Maharashtra has circulated draft amendments to the six non-agricultural university vice-chancellors in the State. The amendments seek to make university work compulsory for teachers and also non teaching staff. The amendments when passed will be incorporated in the Maharashtra University Act, 1974.

News from Agril. Varsities

Method to forecast crop yield

The Indian Agricultural Statistics Research Institute has developed an improved methodology for fore-casting the yield of important crops well before the harvest.

The methodology, which is better than the simple eye-estimation procedure followed so far, has already been treid successfully for paddy, wheat, jowar, sugarcane, cotton, tabacco and jute.

The improved forecast is based mainly on biometrical date like plant population, leaf area, tillage and the like and also agro-meteorological data like rainfall and humidity. The forecast can be done two to three months before harvest.

Similarly, the institute has also developed methods for estimating the incidence of agricultural drought with the help of data on rainfall and yield.

An institute study on the growth of rice and pulse production for 12 years up to 1978-79 shows that there is stagnation in the area under rice in Karnataka, Kerala, Tamil Nadu, Bihar and Orissa. The growth in production in these States is due to increase in yield only. On the other hand, in Punjab and Haryana both acreage and yield of rice have risen substantially. In the case of pulses, there is virtual stagnation in area as well as the yield all over the country.

Satistical research in animal sciences has resulted in the development of techniques of measurement and sampling in breeding and nutrition and fields like cost of production of livestock products. Some of the recent investigations taken up by the institute include sample survey methodology for estimating the area and production of horticultural crops and for studying cost of production of marketing of apples.

Farm research : inter-varsity collaboration suggested

A World Bank team which recently reviewed the progress of work of the National Agricultural Research Project (NARP) has suggested that each university should be asked to organise regional workshops of scientists to discuss the objective of NARP research review reports etc. According to the team the ICAR project cell has systematised the procedures for research reviews and appraisal of projects and it should hereafter ensure qualitative improvement of work in the field.

The team has also recommended inter-university collaboration to ensure formal contact between scientists working in an agro-ecological zone which extends beyond borders of one State and those working on similar crops or similar problems. It has stressed the need to evolve suitable implements for use by the farmers as this has beed found to be another weak link in the overall research framework. Efforts at studying the implements and tools used by farmers improving them and trying them under farmers conditions are lacking.

The team has also suggested that the research staff need to be trained in conceptual aspects of research methodology and design.

Four new varieties of pulses evolved in Pantnagar

The Govind Ballabh Pant University of Agriculture and Technology has evolved four new varieties of pulses which have been approved for release by the central seed committee.

These are chickpea (gram) Pant G 114, lentil variety Pant L 639 and urd varieties Pant U 19 and Pant U 30.

Pantnagar University started the research programme on pu-

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lses in 1970 and has evolved a number of short duration, high yielding disease resistant varieties, specially for crops like gram, lentil, arhar and urd.

The per day availability of pulses in India was 40 grams in 1978-80 as commpared to 65.5 grams in 1960-61.

Weed science

Of the 25,000 and odd plant species in the world 250 have become important weeds in the agriculture and non-agriculture system. Its control has been a permanent struggle for man. Such weeds are to be found everywhere—aquatic system, forests plantation crops, and non-crop areas.

The International Weed Science Society, formed five years ago, has made an impact in promoting research and education in this field. Dr Shooidn Matsunaka, head of this international body, stated recently that an integrated system suitable for different regions and countries keeping in view factors like agriculture techniques and climatic conditions is what is needed. Efforts to step up productivity and large scale use of fertilisers have stimulated the growth of weeds, more so in irrigated areas. Research and studies on weed science however have not received due attention, Dr Matrunaka feels.

The international society proposes to prefrence common terminology for weeds known by different names.

Indo-US varsity project for solar dryers

A portable solar dryer for paddy and pulses and a large-scale stationary dryer for farm produce and food-processing are being developed in India and in the United States under a binational research project.

These simple gadgets, now under fabrication, are expected to generate employment opportunities in rural areas.

Optimal designs for prototypes of solar drying systems for farm produce with auxiliary heating and storage, in tune with the cost factor and seasonal variations, are being worked out by the Annamalai. University in collaboration with the Colorado State University of USA.

The three-year joint venture has secured a grant of Rs. 6 lakhs from the Department of Science and Technology, Government of India, and $ 46,000 (Rs. 4.2 lakhs) from the U.S. Department of Energy.

The small portable solar dryer, being developed by the department of machanical engineering of Annamalai University, is to rely on natural convective air-flow and use of wind/animal power for producing drought.

Mobile drying units are considered necessary to cut the cost of transport, shorten the time lag and avoid wastage of produce.

The portable collector will be transported from village to village and kept at convenient sites for farmers to bring their harvested produce for drying.

The stationary dryer of larger magnitute, being designed at the U.S. university is proposed to be complemented by a prime mover driven blower.

The Annamalai University also intends to draw up designs for a simple stationary flat plate solar centres in rural areas by adapting the salient features of the U.S. model.

The long-range perspective plan envisages developing low-cost solar dryers for paddy and pulses, of different types and sizes to suit the needs of individual farmers and farm establishments.

Training programme on farm management

Inaugurating a six day programme on Application of Management and Productivity Techniques in Agriculture jointly organised by the Department of Business Management of the PAU and the National Productivity Council, Chandigarh, Dr K.S. Gill, Dean of the College of the Basic Sciences & Humanities said that developments in the science and technology had created great awareness among the farmers who were now using modern techniques of farming including high yielding seed varieties, fertilizers and other farm chemicals besides improved farm machinery. Dr Gill further said that there was a need for the application of management principles to agriculture. Senior and middle level executives from agro-chemical industries, commercial banks and state developmental agencies participated in this programme.

Dr M.A. Zahir, Professor and Head, Deptt of Business Management emphasised that with the green revolution various functions relating to agriculture had developed under two distinct classifications i.e. on the farm and off the farm activities. On the farm activity includes the supply of agricultural inputs like seeds, fertilizers, farm chemicals and machinery while off the farm activity includes transportation, processing, storage and marketing of agricultural produce. Efficient Management in agriculture therefore, was necessary

PAU organises kinnow field day

The Department of Horticulture of the Punjab Agricultural University organised a kinnow Field Day at Chhauni Kalan in Hoshiarpur District. Mr Kanshi Ram, Minister for Agriculture, Forests and Irrigation, Punjab, presided over the function. The horticulture experts of the PAU explained the various aspects of Kinnow cultivation to the fruit growers on this occasion.

Theory and applications

The Department of Electrical Engineering of the College of Agricultural Engineering of the Punjab Agricultural University, organised International Conference on 'Systems Theory and Applications' in Ludhiana recently. The three-day conference, sponsored by the UNESCO/ICAR Centre of Advanced Studies in Agricultural Engineering, aimed at discussing original research work done on the recent advances in systems theory and applications with special emphasis on its applications relevant to the present-day needs of developing nations particularly their rural sector.

Dr. B. S. Minhas, Secretary General, Afro-Asian Rural Reconstruction Organisation and a former member of Planning Commission, inaugurated the conference. More than 150 delegates from all over the country besides some from the U.S.A., Canada, U.K., Denmark, Nigeria and Saudi Arabia participated in the conference.

News from UGC

Depoliticise campus, says UGC Chairman

The University Grants Commision Chairman, Dr Madhuri Shah, has suggested depoliticisation of university campuses through out the country to prevent lawlessness and violence. For this, she has suggested the abolition of elections to students councils, favouring instead nomination of merit students.

Dr Shah said that during the course of her one year in office she met a large number of students from different universities, who complained to her that their studies suffered because of disturbances that accompany elections on the campus.

The U.G.C. Chairman said she gathered the impression from her conversation with students that candidates, backed by political parties, spent huge amounts in elections.

Dr Shah said lawlessness and violence in the higher seats of learning persisted "at the cost of a majority of innocent students longing for higher studies."

She firmly believed that once merit students were nominated to students councils, the general atmosphere in universities would become congenial to academic pursuit. Merit scholars could be picked up from different streams to form a council. The composition of such a council would serve the real academic purpose, she said.

Dr Shah said the U.G.C. had recently decided to finance computer training and instrument maintenance programmes, over and above the Sixth Plan allocation.

The Commission had identified 10 centres for introducing the three-year postgraduate course called the Master of Computer Application (M.C.A.). It would commence on the next academic term (1982-83). The syllabus for this course had jointly been prepared by the U.G.C. and the Department of Electronic Commission, she said.

The course would open a new avenue for arts, science and social science graduates.

The U.G.C. Chairman said she had recently appointed a study council to make the correspondence courses more effective and meaningful. The council would submit its report in six months. The revised course would enable students to make their graduation in arts, science and commerce effectively.

Dr Shah said that the U.G.C. had decided to finance "middle atmosphere study" being undertaken by a committee of eminent scientists, headed by Prof. R. R. Dennul of the Tata Research Centre. The study, the first of its kind, would analyse the impact of atmospheric effect on living and non-living objects.

Dr Shah, who recently discussed the sixth plan proposals and priorities separately with Vice-Chancellors of State universities, said the Commission would soon release the fund for priority proposals.

Refresher course for old graduates likely

The University Grant Commission is considering the introduction of a refresher course for old graduates to modernize their education, the UGC Chairman, Dr Mrs Maduri Shah, said recently.

Opening the silver jubilee celebrations of the All-India Instrument Manufacturers and Dealers Association at Bombay she said the need for re-education was specially felt in the field of engineering and Technology. "Training program-

To Our Readers

To meet partially the rising cost of production it has been decided to increase the subscription rates of UNIVERSITY NEWS from 1.1.1982. The revised rates are :

Years	Inland (Rs.)	Foreign Surface Mail (Rs.)	Foreign Air Mail (Rs.)
1 year	24.00	100.00	180.00
2 years	40.00	180.00	330.00
3 years	54.00	250.00	470.00
5 years	80.00		
Single copy	1.25	5.00	10.00

mes too will have to be continuous to keep pace with technological developments," she said.

Obsolete training and education forced the demand of obsolete instruments and equipments, she pointed out and called for a closer link between research organizations, industry, and educational institutions.

Referring to the disparity in economic fortunes prevailing in the country, she appealed to the industry to devote adequate attention to modernization of old techniques "as everybody may not be able to discard their old instruments and go in for new ones".

UGC, on its part, was planning to modernize the two training centres and open two new ones, one in the East and one in the North, to offer training programmes, she said. The industry should also contribute new instruments to educational institutions as students could transform the use and stimulate demand of these instruments.

Stressing the inter-dependence between educational institutions and industy, she appeled to manufacturers to create a readiness for technological change in the minds of sudents to help in the development of the nation.

UGC for farm Journalism

The University Grants Commission's panel on mass communication has recommended that agricultural journalism syllabi should be made part of the journalism and commumication courses in the universities.

The panel has expressed the view that the minimum infrastructure required for a department of journalism and communication should include an audio visual laboratory with projectors and recorders, besides a laboratory for printing and typography.

The panel, which has brought out a report on the status of journalism and communication education in country, has said that the future of journalism at home lies mainly with the language press.

It has suggested a number of plans for the development of language journalism, including the introduction of full-fledged journalism degree courses in regional languages.

The panel has suggested that the UGC can help coordinate with the Information and Broadcasting Ministry for practical training of journalism and communication institutes. It had suggested, in addition, the provision of adequate scholarships or fellowships for research in commuication and journalism.

Science & Technology

Some notable strides in 1981 in Indian Science

Indian Scientists made a hat trick in space by launching three satellites in a row, discovered a new theory of superconductivity and collected mineral nodules from the seabed.

India entered the domestic satellite communication era with the launch of the Apple satellite on July 19. Rohini II was launched two months earlier from Indian soil. Bhaskara II was launched by India from USSR. Rohini II burnt up within nine days but Bhaskara II was a success.

Scientists at the National Physical Laboratory, New Delhi discovered a new theory to explain super conductivity. This would help construction of huge magnets to harness the fusion energy.

Underground experiments being carried out in the Kolar Gold mines has thrown tell tale evidence of decay of proton—a particle that was hither to considered stable.

Scientists at the Central Fuel Research Institute developed a new process for making sponge iron using non-coking coal which is available in abundance in India.

Several other developments in different fields of scince and technology did credit to India in 1981.

New life form

An Indian scientists in Chicago says he has created an entirely new form of life, a microbe that may be able to clean up vast amounts of harmful toxic chemical wastes. According to Dr A.M. Chakraborty of the University of Illinois medical centre in Chicago, to date the microbe exists only in his test tubes. The microbe was genetically engineered, not found in nature. To create his new microbe, Dr Chakraborty collected microbes which had already begun developing an ability to degrade or break up chemical molecules. He fed them with a special 'plasmid,' which helped the microbes to further break up certain molecules. And so developed 'pseudomonas cepacia,' the scientific name for his new species.

According to Dr Chakraborty, 'We can decontaminate the soil by applying the bugs (the new microbe species) once a week for six weeks.'

Incentive scheme to encourage scientists

The Indian Science Congress Association has introduced from this session an incentive scheme to encourage young scientists towards excellence in their scientific pursuits.

Announcing this Prof. M. G. K. Menon, President of the session said 20 cash awards of Rs. 3000 which, includes Rs. 2500 towards the purchase of equipment would be given to scientists selected on the basis of the papers presented by them.

He made it clear that the scheme was in addition to the cash award of Rs. 500 and a medal being presented by the Indian National Science Academy annually.

Conferences, Congresses and Seminars

January-March, 1982

Date	Topic	Venue	Host Institution/s
4—7 January 1982	International Symposium on some aspects of Genes Expression and its regulation.	Calcutta	Indian Institute of Chemical Biology, Calcutta
4—7 January 1982	International Symposium on Theoretical Physics	Delhi	Indian National Sc. Academy & Delhi University, Delhi
4—9 January 1982	National Seminar on Application and *Productivity Techniques in Agriculture*	Ludhiana	Department of Business Man., P.A.U. *National Productivity Council*, Chandigarh
4—9 January 1982	Problems of Deep Mining	Dhanbad	Indian School of Mines, Dhanbad-826004
4—10 January 1982	Theory and applications of random fields	Bangalore	Indian Statistical Institute Caclutta-700 035
4—16 January 1982	*Language Journalism Workshop*	*Orissa*	*Indian Institute of Mass Com*munication, D-13 Ring Road, NDSE-II, N. Delhi-49
6—8 January 1982	Cellular control mechanism	Bombay	Bio-medical group, Bhabha Atomic Research Centre, Trombay, Bombay-400 085
6—8 January 1982	Workshop on Manpower Planning for Health *& Development*	Vellore	Indian Council of Medical Research, *Ansari Nagar. N. Delhi*
7—8 January 1982	6 Cooperative dairy development conference	Lucknow	Pradeshik Cooperative Dairy Fed. Ltd., 29 Park Road, Lucknow
7—13 January 1982	Voluntary organisations and rural development	Hyderabad	All India Women's Conference 6 Bhagwan Dass Road, N. Delhi
8 January 1982	Experiences with alternative strategies of industrialisation.	*Delhi*	Institute of Economic Growth University of Delhi, Delhi
8—10 January 1982	International Symposium on Application of NMR in Chemistry and Biology.	Calcutta	Indian Institute of Chemical Biology, Calcutta-700 032
8—15 January 1982	International Workshop on Nutrition and the Development of the Child	Baroda	I.C.M.R. and Deptt. of Biochemistry, M.S. University, Baroda.
11—14 January 1982	Advances in information science and technology	Calcutta	Indian Statistical Institute, Calcutta-700 035
11—15 January 1982	All-India Symposium on Optical and E.S R. Spectra of *Transition Metal & Rare-earth Ions*	Tirupati	Department of Physics. Sri *Venkateswara University, Tirupati*-517502 (AP)
11—16 January 1982	Systems Analysis and its application to engineering problems	Bombay	Indian Institute of Technology Powai, Bombay-500 076
11—16 January 1982	Winding in Mines	Dhanbad	Indian School of Mines
12—25 January 1982	Regional Workshop in Long-term Educational Planning	New Delhi	National Instt. of Education Planning and Administration, 17B. *Sri Aurobindo Marg, N.D.*
Mid-January 1982	Theatre Journalism Workshop	New Delhi	Indian Institute of Mass Communication, New Delhi-49
15—16 January 1982	Present and future trends in ghee and fat rich dairy products	Karnal	I.S. Verma, NDRI, Karnal-132001
15—17 January 1982	Seminar on Social Aspects of Health and Medical Services	Jodhpur	University of Jodhpur and ICMR
18—20 January 1982	Joint ISM-AMM Symposium on Applications of Geological and Geophysical Techniques to Mining	Dhanbad	Indian School of Mines, Dhanbad; University of Metallurgy, *Cracow (Poland)*
18—20 January 1982	Workshop on Gravitation and Relativistic Astrophysics	Ahmedabad	Physical Research Laboratory Ahmedabad; Indian National Science Academy
18—22 January 1982	Symposium on Philosophical Theory and Social Reality	New Delhi	Nehru Memorial Museum & Library, Teen *Murthi* House, N. *Delhi-11*
18—23 January 1982	*Orientation Programme for District* Adult Education Officers-Refresher course.	New Delhi	*National Instt. of* Educational Planning and Administration, Directorate of Adult Education
22—23 January 1982	XXXVII Joint Annual Conference of Association of Physicians of India and Diabetic Asson. of India	New Delhi	Diabetic Association of India Bombay-400 023
22—24 January 1982	Modern Trends and Thermal power generation	New Delhi	The Institute of Marine Engineers 3rd Floor, Atlanta, Bombay-21
23—24 January 1982	Display devices	Bangalore	Institution of Electronics and Telecommunication Engineers, Bangalore-560 003
25 Jan-13 Feb 1982	Petroleum Production Engineering	Dhanbad	Indian School of Mines

Date	Topic	Venue	Host Institution/s
27—30 January 1982	Orientation Programme for Key Personnel of National Service Scheme	New Delhi	National Instt. of Educational Planning & Administration
27 Jan-2 Feb 1982	Role of women in economic development	—	All India Women's Conference 6 Bhagwan Dass Road, N. Delhi-1
28—29 January 1982	Maintenance of Key Equipment : Compressors and Heat Exchangers	Hyderabad	Fertiliser Association of India Near JNU, New Delhi-110067
29—30 January 1982	Sixth Sri Ram Memorial Lecture Series in Management : "Management in government".	Ludhiana	Department of Business Man., PAU, Ludhiana
29—31 January 1982	XIV Annual Conference of the Indian Speech and Hearing Association	Mysore	All India Institute of Speech and Hearing, Manasa Gangothri Mysore-570 006
30—31 January 1982	3rd Maharashtra Political Science Conference	Kolhapur	Shivaji University, Kolhapur-416004
30 Jan—1 Feb 1982	Symposium on Educational consequences of accepting the concept of comprehensive health care.	Panaji	Goa Medical College, Panaji, Indian Association for Advancement of Medical Education, ICMR
January 1982	Annual Conference of the Indian Association for Pre-School Education	Tirupati	Department of Home Science Sri Venkateswara University.
January 1982	Annual Conference of the Indian Association of Population Education	Tirupati	Deptt. of Population Studies Sri Venkateswara University.
January 1982	8th National Convention on Environmental Engineering	Tirupati	Department of Civil Engg. Sri Venkateswara University
January 1982	Symposium on Chemistry, Agriculture & Men : at the time of the 90th Birthday Celebrations of Prof. N.R. Dhar	Allahabad	National Academy of Sciences, Allahabad; INSA
January 1982	Workshop on Fluid Inclusions in Minerals its scope and applications	Bombay	IIT Bombay; INSA
Jan/Feb 1982	Management of Usar Soils	Dholi (Bihar)	Fertiliser Association of India
1-5 February 1982	Human genetics and adaptation	Calcutta	Indian Statistical Institute.
3—6 February 1982	National Space Science Symposium	Bangalore	Indian Institute of Science, Bangalore; INSA
6—8 February 1982	Socio.economic problems of tribal development in M.P.	Indore	University of Indore, Indore 452001
8—9 February 1982	TRAFOTECH-82: International Conference on Transformers	New Delhi	Indian Electrical Manufacturer Association, 501 Kakad Chambers, 132 Dr Annie Besant Road, Worli, Bombay-400018.
8—11 February 1982	Second National Symposium on Position Annihilation.	Madras	University of Madras; INSA
8—13 February 1982	Orientation Programme for Heads of Schools and Inspecting Officers of Pondicherry	Pondicherry	National Instt. of Educational Planning & Administration.
8—16 February 1982	12th International Congress of Soil Science	New Delhi	Indian Society of Soil Science [illegible]
8—27 February 1982	Third Orientation Programme for College Principals	New Delhi	[illegible]
10—14 February 1982	Techniques involved in urolithissis	Chandigarh	Postgraduate Institute of Medical Education and Research, Chandigarh.
10—15 February 1982	All India coordinated fruit improvement project workshop	Nagpur	Indian Instt. of Horticultural Research, Bangalore-560 080.
13—14 February 1982	37th Annual Convention and international seminar on "Current Advances in the technology of oil and allied products".	Kanpur	Oil Technologists Association of India c/o DCM Chemical Works, New Delhi-110015.
Mid February 1982	Seminar on Organometallic Compounds in Chemical Synthesis	Jaipur	University of Rajasthan, Jaipur; INSA.
15—16 February 1982	R&D in Fertiliser Industry/Research Centres	Bombay	Fertiliser Association of India, Near JNU, New Delhi-110067.
15—19 February 1982	Workshop on Evaluation of Mutagenic Potential of Environmental Agents—Microbial & Mammalian System	Bombay	B.A.R.C. Bombay; INSA.
15—20 February 1982	Drilling Engineering (UBP/DUC)	Dhanbad	Indian School of Mines
15 Feb—6 March 1982	Oilwell Drilling Technology	Dhanbad	Indian School of Mines
17 February 1982	HK Sen Memorial Lecture	Calcutta	Institution of Chemists c/o Chemical Department, Medical College, Calcutta-700 073.
17—18 February 1982	Radiation sterilization of biomedical products and pharmaceuticals	Bombay	ISOMED Division, Bhabha Atomic Research Centre, Bombay-400 085.
17—19 February 1982	International Symposium on Primates	Jodhpur	Department of Zoology, Jodhpur University, Primatological Society of India; ICMR.
18—20 February 1982	Quality control, reliability and operational research.	Delhi	Indian Statistical Institute, Calcutta 700 035.

Date	Topic	Venue	Host Institution/s
23—24 February 1982	Strong electrolytes	Calcutta	The Society for Advancement of Electrochemical Science & Technology. Karaikudi-623006.
24—26 February 1982	National Seminar on Rodent Research and Management	Jodhpur	CAZRI, ICAR, Jodhpur-342003.
25—27 February 1982	Biological Nitrogen Fixation	New Delhi	Biology and Agricultural Division BARC, Trombay, Bombay-400 085
25—27 February 1982	Package and practices to ensure efficient health cover for exotic and cross-bred diary cattle	Ludhiana	Panjab Agricultural University, Ludhiana-141004.
26—28 February 1982	Rationalism and traditionalism in Islamic thought	Aligarh	Department of Islamic Studies Aligarh Muslim University, Aligarh-202001.
26—28 February 1982	Symposium on Vectors and Vector-Borne Diseases	Trivandrum	Department of Zoology, University of Kerala, Trivandrum; ICMR.
27—28 February 1982	Third All India Workshop on Rodent Research	Jodhpur	CAZRI
February 1982	Dealers Training Programme	Akola	Fertiliser Association of India
February 1982	International Symposium on Occupational Health Problems in Developing Countries	Ahmedabad	National Instt. of Occupational Health, Ahmedabad; ICMR.
February 1982	XIII National Conference on Crystallography	Nagpur	University of Nagpur; INSA.
February 1982	One-week Training Course in EPM for Officers of Government of Kenya	New Delhi	National Institute of Education, Planning and Administration.
February 1982	Orientation course—Agricultural graduates	Madurai	Fertiliser Association of India.
Last week of February	Orientation course in 'Personnel Management' for Sub-Divisional and District Education Officers of Haryana	New Delhi	National Institute of Education, Planning and Administration
Early March	Orientation Programme for DEOs on Population Education	New Delhi	National Institute of Education, Planning and Administration.
1—2 March 1982	Educational Utilization of standards	Pantnagar	GB Pant University of Agriculture and Technology, Pantnagar-263145
1—5 March 1982	Collection development and document circulation	Bangalore	DRTC, Indian Statistical Instt. Bangalore-560 001.
1—5 March 1982	Technology of electrical insulation and high voltage pulse techniques	Bombay	Plasma Physics Section, Bhabha Atomic Research Centre, Bombay-85.
First week of March	National Conference of Key Personnel (Education Secretaries, DPIs etc.) on Adult Education	New Delhi	National Institute of Education, Planning & Administration.
8—13 March 1982	Mining for non-mining executives	Dhanbad	Indian School of Mines
13—15 March 1982	National symposium on Biotechnology	Chandigarh	Department of Chemical Engg. and Technology, Punjab University, Chandigarh.
2nd week of March	Problems of using Marathi as the medium of instruction at PG level	Kolhapur	Shivaji University, Kolhapur 416004.
15—17 March 1982	Symposium on Internal Auditory Canal Surgery	New Delhi	Deptt. of Otolaryngology, AIIMS, New Delhi, Neurotological and Equilibriometric Society of India,; ICMR.
15—20 March 1982	Health manpower planning and development	New Delhi	National Institute of Health and Family Planning, New Delhi-67.
15—27 March 1982	Geotechnical Engineering	Dhanbad	Indian School of Mines
15—27 March 1982	Rock Mechanics & Design of Underground Excavation	Dhanbad	Indian School of Mines
15 Mar—3 Apr 1982	Computer Applications in Load Despatch	Roorkee	University of Roorkee, Roorkee.
22—23 March 1982	Operating Experience of Nuclear Reactors and power plants	Bombay	CIRUS, Bhabha Atomic Research Centre, Trombay, Bombay-400 085.
22 Mar—3 Apr 1982	Applications of Electron Microscope	Roorkee	University of Roorkee.
26 28 March 1982	All India Islamic Studies Conference 9706	Aligarh	Department of Islamic Studies Aligarh Muslim University, Aligarh.
29 Mar—3 April 1982	Electrical Drives for Mines	Dhanbad	Indian School of Mines.
29 Mar—10 Apr 1982	Instrumental Techniques of Analysis of Mines	Dhanbad	Indian School of Mines.
March 1982	Instrumentation Engineers	Hyderabad/ Baroda	Fertiliser Association of India.
March 1982	Marketing Management Development	New Delhi	Fertiliser Association of India
March 1982	Orientation Programmes for Indian Air Force Officers (Education)	New Delhi	National Institute of Educational Planning & Administration.
March 1982	Programme for Sales Training Representatives of Fertiliser Industry	Ahmedabad	Fertiliser Association of India.
March 1982	Women's Magazines: A Workshop	New Delhi	Indian Institute of Mass Communication.
March/April 1982	Programme for Fertiliser Promotion Executives	New Delhi	Fertiliser Association of India.

Subject Index

Date	Topic	Venue	Host Institution/s
Agricultural Sciences			
4—9 January 1982	National Seminar on Application and Productivity Techniques in Agriculture	Ludhiana	Department of Business Man., PAU National Productivity Council, Chd
7—8 January 1982	6 Cooperative dairy development conference	Lucknow	Pradeshik Cooperative Dairy Fed. Ltd., 29 Park Road, Lucknow.
15—16 January 1982	Present and future trends in ghee and fat rich dairy products	Karnal	Dr. I.S. Verma, NDRI, Karnal 132001
January 1982	Symposium on Chemistry, Agriculture and Men; at the time of the 90th Birthday Celebrations of Prof. N.R. Dhar	Allahabad	National Academy of Science, Allahabad; I.N.S.A.
January/Feb. 1982	Management of Usar Soils	Dholi	Fertiliser Association of India
8—16 February 1982	12th International Congress of Soil Science	New Delhi	Indian Society of Soil Sciences IARI, New Delhi 110012
10—15 February 1982	All India Coordinated fruit improvement project workshop	Nagpur	Indian Instt. of Horticultural Research, Bangalore 560 080
15—16 February 1982	R & D in Fertilizer Industry/Research Centres	Bombay	Fertiliser Association of India Near JNU, New Delhi 110067
25—27 February 1982	Package and practices to ensure efficient health cover for exotic and cross-bred dairy cattle	Ludhiana	Panjab Agricultural University Ludhiana 141004
February 1982	Dealers Training Programme	Akola	Fertiliser Association of India
February 1982	Orientation Course—Agricultural Graduates	Madurai	Fertiliser Association of India
1—2 March 1982	Educational Utilization of Standards	Pantnagar	GB Pant University of Agricultural and Technology, Pantnagar.
Anthropology and Sociology			
6—8 February 1982	Socio-economic problems of tribal development in MP	Indore	University of Indore, Indore-452001
Computer Studies			
11-16 January 1982	Systems Analysis and its application to engineering problems	Bombay	IIT, Bombay
15 March-3 April 1982	Computer Applications in Load Despatch	Roorkee	University of Roorkee, UP
Documentation and Information Science			
11—14 January 1982	Advances in information science and technology	Calcutta	Indian Statistical Institute, Calcutta-700 035
1—5 March 1982	Collection development and document circulation	Bangalore	DRTC, Indian Statistical Institute, Bangalore-560 001
Economics			
8 January 1982	Experiences with alternative strategies of industrialisation	Delhi	Instt. of Economic Growth, University of Delhi, Delhi-110007
Education			
12—25 January 1982	Regional Workshop in Long-term Educational Planning	New Delhi	National Instt. of Planning and Administration, 17B Sri Aurobindo Marg, New Delhi-110016 with UNESCO, Bangkok
18—23 January 1982	Orientation Programme for District Adult Education Officers—Refresher course	New Delhi	National Instt. of Educational Planning & Administration, Directorate of Adult Education
27—30 January 1982	Orientation Programme for Key Personnel of National Service Schemes	New Delhi	National Instt. of Educational Planning & Administration
January 1982	Annual Conference of the Indian Association for Pre-School Education	Tirupati	Department of Home Science, Sri Venkateswara University.
8—13 February 1982	Orientation Programme for Heads of Schools & Inspecting Officers of Pondicherry	Pondicherry	National Instt. of Educational Planning and Administration
8—27 February 1982	Third Orientation Programme for College Principals	New Delhi	National Instt. of Educational Planning and Administration
February 1982	One-week Training Course in EPM for Officers of Govt. of Kenya	New Delhi	National Instt. of Educational Planning and Administration
1st week of March 1982	National Conference of Key Personnel (Education Secretaries, DPIs etc.) on Adult Education	New Delhi	National Instt. of Educational Planning and Administration
March 1982	Orientation Programmes for Indian Air Force Officers (Education)	New Delhi	National Instt. of Educational Planning and Administration
Electrical & Electronic Engineering			
11—16 January 1982	Systems Analysis and its application to engineering problems	Bombay	IIT, Powai, Bombay-400 076
22—24 January 1982	Modern Trends and Thermal Power Generation	New Delhi	The Institute of Marine Engineers 3rd Floor, Atlanta, Bombay-400 021

Date	Topic	Venue	Host Institution/s
23—24 January 1982	Display devices	Bangalore	The Instt. of Electronics and Telecommunication Engineers 32. 2nd Main Road, Vyalikaval, Bangalore-560003
25 Jan.—13 Feb. 1982	Petroleum Production Engineering	Dhanbad	Indian School of Mines
28—29 January 1982	Maintenance of Key Equipment : Compressors and heat exchangers	Hyderabad	Fertiliser Association of India Near JNU, New Delhi-110067
January 1982	8th National Convention on Environmental Engineering	Tirupati	Deptt. of Civil Engineering, Sri Venkateswara University
8—9 February 1982	TRAFOTECH-82 : International Conference on Transformers	New Delhi	Indian Electrical Manufacturers' Association, 501 Kakad Chambers 132 Dr. Annie Besant Road, Worli, Bombay-400 018
15—20 February 1982	Drilling Engineering (UBP/DUC)	Dhanbad	Indian School of Mines
29 Mar—3 April 1982	Electrical Drives for Mines	Dhanbad	Indian School of Mines
March 1982	Instrumentation Engineers	Hyderabad/ Baroda	Fertiliser Association of India
History			
18—22 January 1982	Symposium on Philosophical Theory and Social Reality	New Delhi	Nehru Memorial Museum & Library, New Delhi
Language and Linguistics			
2nd wk. of March '82	Problems of using Marathi as the medium of instruction at PG level	Kolhapur	Shivaji University, Kolhapur-416004
Management			
29—30 January 1982	Sixth Sri Ram Memorial Lecture Series in Management : "Management in Government"	Ludhiana	Department of Business Man. PAU, Ludhiana
18—20 February 1982	Quality control, reliability and operational research	Delhi	Indian Statistical Institute, Calcutta-700 035
Last wk. of Feb. 1982	Orientation Course in 'Personnel Management' for Sub-Divisional and District Education Officers of Haryana	New Delhi	National Instt. of Educational Planning & Administration
March 1982	Marketing Management Development	New Delhi	Fertiliser Association of India
March 1982	Programme for Sales Training Representatives of Fertiliser Industry	Ahmedabad	Fertiliser Association of India
March/April 1982	Programme for Fertiliser Promotion Executives	New Delhi	Fertiliser Association of India
Mass Communication			
4 –16 January 1982	Language Journalism Workshop	Orissa	Indian Instt. of Mass Communication D-13 Ring Road, South Extension, Part-II, New Delhi-110049
Mid-January 1982	Theatre Journalism Workshop	New Delhi	Indian Instt. of Mass Communication
March 1982	Women's Magazines: A Workshop	New Delhi	Indian Instt. of Mass Communication
Medicine & Public Health			
6— 8 January '82	Workshop on Manpower Planning for Health and Development	Vellore	Indian Council of Medical Research Ansari Nagar, PO Box 4508, New Delhi-110029
8—15 January '82	International Workshop on Nutrition and the Development of the Child	Baroda	I.C.M.R. and Deptt. of Biochemistry M.S. University, Baroda
15—17 January '82	Seminar on Social Aspects of Health and Medical Services	Jodhpur	University of Jodhpur and ICMR
22—23 January '82	XXXVII Joint Annual Conference of Association of Physician of India and Diabetic Association of India	New Delhi	Diabetic Association of India Maneekji Wadia Building 127 MG Road, Bombay-400 023
29—31 January '82	XIV Annual Conference of the Indian Speech and Hearing Association	Mysore	All India Instt. of Speech and Hearing, Manasan Gangothri Mysore-570 006
30 Jan—1 Feb '82	Symposium on Educational Consequences of accepting the Concept of Comprehensive Health Care	Panaji	Goa Medical College, Panaji; Indian Association for Advancement of Medical Education; ICMR
January 1982	Annual Conference of the Indian Association of Population Education	Tirupati	Department of Population Studies Sri Venkateswara University
10—14 February '82	Techniques involved in Urolithissis	Chandigarh	Postgraduate Instt. of Medical Education and Research, CHD
17—18 February '82	Radiation sterilization of biomedical products and pharmaceuticals	Bombay	ISOMED Division, Bhabha Atomic Research Centre, Bombay-400 085
February 1982	International Symposium on Occupational Health Problems in Developing Countries	Ahmedabad	National Instt. of Occupational Health, Ahmedabad, ICMR
Early March	Orientation Programmes for DEOs on Population Education	New Delhi	National Instt. of Educational Planning & Administration

Date	Topic	Venue	Host Institution/s
15—17 March 1982	Symposium on Internal Auditory Canal Surgery	New Delhi	Deptt. of Otolaryngology, AIIMS New Delhi; Neurotological and Equilibriometric Society of India; ICMR
15—20 March 1981	Health manpower planning and development	New Delhi	National Institute of Health and Family Planning, New Delhi-67
Mining & Metallurgy			
4—9 January 1982	Problems of Deep Mining	Dhanbad	Indian School of Mines
11—16 January 1982	*Winding in Mines*	Dhanbad	Indian School of Mines
18—20 January 1982	*Joint ISM-AMM Symposium on Applications* of Geological and Geophysical Techniques to Mining	Dhanbad	Indian School of Mines, Dhanbad; University of Mining and Metallurgy, Cracow (POLAND)
January 1982	Workshop on Fluid Inclusions in Minerals, its scope and applications	Bombay	IIT, Bombay; INSA
15 Feb—6 March 1982	*Oilwell Drilling Technology*	Dhanbad	Indian School of Mines
8—13 March 1982	*Mining for Non-Mining Executives*	Dhanbad	Indian School of Mines
15—27 March 1982	Geotechnical Engineering	Dhanbad	Indian School of Mines
15—27 March 1982	*Rock Mechanics & Design Underground Excavation*	Dhanbad	Indian School of Mines
29 Mar—10 April 1982	Instrumental Techniques of Analysis of Minerals	Dhanbad	Indian School of Mines
Philosophy			
18-22 January 1982	*Symposium on* Philosophical Theory and Social Reality	New Delhi	Nehru Memorial Museum & Library Teen Murti House, New Delhi-110011
Political Science			
30—31 January 1982	3rd Maharashtra Political Science Conference	Kolhapur	Shivaji University, Kolhapur-416004
Religion			
26—28 February 1982	Rationalism and traditionalism in Islamic thought	Aligarh	Department of Islamic Studies Aligarh Muslim University AMU-202001
26—28 March 1981	All India Islamic Studies Conference	Aligarh	—same—
Science & Technology			
4—7 January 1982	International Symposium on Some Aspects of Genes Expression and its Regulation	Calcutta	Indian Instt of Chemical Biology, Calcutta
4—7 January 1982	International Symposium on Theoretical Physics	Delhi	University of Delhi, Delhi; Indian National Science Academy
4—10 January 1982	Theory and applications of random fields	Bangalore	Indian Statistical Institute Calcutta-700 035
6—8 January 1982	Cellular Control Mechanism	Bombay	Bio-medical group Bhabha Atomic Research Centre, Trombay Bombay-400 085
8—10 January 1982	International Symposium on Application of NMR in Chemistry & Biology	Calcutta	Indian Instt. of Chemical Biology 4 Raja S.C. Mullick Road, Calcutta-700 032
11—15 January 1982	*All-India Symposium on Optical and E.S.R.* Spectra of Transition Metal & Rare-earth Ions	Tirupati	Department of Physics Sri Venkateswara University
18—20 January 1982	Workshop on Gravitation & Relativistic Astrophysics	Ahmedabad	Physical Research Laboratory, Ahmedabad; Indian National Science Academy
January 1982	Symposium on Chemistry, Agriculture & Men; *at the time of the 90th Birthday celebrations of* Prof. N.R. Dhar	Allahabad	National Academy of Sciences, India; Allahabad—INSA
1—5 February 1982	Human Genetics and Adaptation	Calcutta	Indian Statistical Institute Calcutta-700 035
3—6 February 1982	National Space Science Symposium	Bangalore	Indian Institute of Science, Bangalore, INSA
8—11 February 1982	Second National Symposium on Position Annihilation	Madras	University of Madras, INSA
13—14 February '82	37th Annual Convention and international seminar on "Current Advances in the technology of oil and allied products"	Kanpur	Oil Technologists Association of India c/o DCM Chemical Works, New Delhi-15
Mid February 1982	Seminar on Organometallic Compounds in Chemical Synthesis	Jaipur	University of Rajasthan, Jaipur
15—19 February '82	Workshop on Evaluation of Mutagenic Potential of Environmental Agents—Microbial & Mammalian system	Bombay	BARC Bombay, INSA
17 February 1982	H.K. Sen Memorial Lecture	Calcutta	Institution of Chemists c/o Chemical Department, Medical College, Calcutta-700 073

Date	Topic	Venue	Host Institution/s
17—19 February 1982	International Symposium on Primates	Jodhpur	Department of Zoology, Jodhpur University; Primatological Society of India; ICMR
23—24 February '82	Strong electrolytes	Calcutta	The Society for Advancement of Electrochemical Science & Technology, Karaikudi 623006
24—26 February '82	National Seminar on Rodent Research & Management	Jodhpur	CAZRI, ICAR, Jodhpur-342003
25—27 February '82	Biological Nitrogen Fixation	New Delhi	Biology and Agricultural Division BARC, Trombay, Bombay-400 085
26—28 February '82	Symposium on Vectors & Vector-Borne Diseases	Trivandrum	Department of Zoology, University of Kerala, Trivandrum; ICMR
27—28 February '82	Third All India Workshop on Rodent Research	Jodhpur	CAZRI
February 1982	XIII National Conference on Crystallography	Nagpur	University of Nagpur; INSA
1—5 March 1982	Technology of electrical insulation and high voltage pulse techniques	Bombay	Plasma Physics Section, Bhabha Atomic Research Centre, Bombay-85
13—15 March 1982	National Symposium in Biotechnology	Chandigarh	Department of Chemical Engineering and Technology, Panjab University, Chandigarh-160014
22—23 March 1982	Operating Experience of Nuclear Reactors and power plants	Bombay	CIRUS, Bhabha Atomic Research Centre, Trombay, Bombay-15
22 March—3 Apr 1982	Applications of Electron Microscope	Roorkee	University of Roorkee, UP
Social Welfare			
7—13 January 1982	Voluntary organisations and rural development	Hyderabad	All India Women's Conference 6, Bhagwan Das Road, New Delhi-110001
Womens' Studies			
27 January—2 Feb '82	Role of women in economic development	—	All India Women's Conference 6, Bhagwan Das Road, New Delhi-110001.

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Content in Higher Education

(*Contd. from page 45*)

ought to be done at our universities. The present day teaching leaves no scope for creativity and consequently, it is quite inadequate to meet the challenge of the times and changing dimensions of modern knowledge. Teaching techniques remaining almost primitive the teachers' major anxiety naturrally is to complete the syllabus somehow and that too with a 20 hour academic week. It is necessary that teaching should aim at imparting strategies of learning. Student's own initiative to learn must be fostered and encouraged during the course of his education. The student has to be taught to explore the field of study on his own after he is given the necessary directions and guidance. Thereafter, day-to-day discussions will help in clearing various issues with which he is not in a position to come to grips. This pattern of education has practically disappeared from our universities. Its restoration is vital and so is the idea of prolonged academic weeks certainly not shorter than about 40 hours of effort per week. The advantages of such a change are obvious—the students would be seeking knowledge and by being busy for a major part of the day would remain aloof from undesirable and disturbing influences.

Another important aspect which needs to be emphasised in our education is the link between the words of education and work. The adoption of productive work into the educational process as a means of enhancing the value of training and providing a proper preparation for working life are of great significance to us. Work-based education which will encourage earning while learning and which will be of service to the community must permeate the educational system at all levels. Apart from giving the needy students finances which they can utilise for meeting part of the expenses of their studies it would teach them the dignity of labour—a very desirable feature in our country.

In many universities the actual number of working days during a session is far less than the stipulated 180 days. As a result, many of the facilities created at considerable cost to the public exchequer, remain unused or under utilised. The paradox of the Indian situation is that while on the one hand we are faced with the problem of providing facilities for higher education to many more deserving students, on the other hand the infrastructure created for higher education at considerable cost is not properly or fully utilised resulting in huge wastage of our national resources. Unless this situation is remedied a reasonable return on heavy investments on higher education cannot be expected.

[*Excerpts from the convocation address delivered at the Shivaji University.*]

RESEARCH IN PROGRESS

PHYSICAL SCIENCES

Physics

1. Abraham, Thomas. Growth and characterization of some halide crystals. University of Kerala. Prof. M.A. Ittyachen, Head, Department of Physics, University of Kerala, Trivandrum.

2. Chaturvedi, Kailashnath. Electron tunneling in III-V group semiconductors. University of Indore. Dr. S.K. Rathore.

Chemistry

1. Abha. Studies on physico-chemical properties of magnesium soaps in mixed solvents. Meerut University.

2. Agarwal, Vishnu Dayal. Substituted cyanonitrosyl complexes of manganese. Kanpur University. Dr. U.C. Tiwari, Department of Chemistry, D.A.V. College, Kanpur.

3. Ajai Kumar. Studies on lipid-lipid and lipid-protein interactions in model membrane systems. Kanpur University. Dr. G.m. Gupta, Scientist, Central Drug Research Institute, Lucknow.

4. Anang Pal. Studies of mixed ligand complexes involving biologically active ligands and heavy metals. Meerut University.

5. Anil Kumar. Studies on physical properties of alkaline earth metal butyrates. Meerut University.

6. Arora, C. P. Antineoplastic agents : Synthesis and characterization of some substituted thiocarbomoyl pyrazoles and their derivatives. Meerut University.

7. Arya, Rishi Kumar. Studies on sulphur containing chelating agents. Kanpur University. Dr. S.D. Varma, Department of Chemistry, D.A.V. College, Kanpur.

8. Bali, Anu. Studies on chemical synthesis of modified phospholipids and possible use of their liposomes in durg delivery. Kanpur University. Dr. C.M. Gupta, Scientist, C-1109, Sector A, Mahanagar, Lucknow.

9. Bamezai, Shakti. An experimental assessment of possible origins of the genetic code. Kanpur University. Dr. S. Ranganathan, Head, Department of Chemistry, Indian Institute of Technology, Kanpur.

10. Bansal, M.C. Structural studies of some naturally occurring flavonoids. Meerut University.

11. Bhardwaj, Pramod Kumar. Kinetics and mechanism of some homogeneous redox processes in solution in presence of platinum metal compound. Meerut University.

12. Bhatta, Bal Krishna. Studies on the synthesis of possible antimalarial agents. Kanpur University. Dr. A.P. Bhaduri, 554, New Hyderabad, Lucknow.

13. Bose, Protima. Studies of the structures of polysaccharides occuring in plant gum. Kanpur University. Dr. S. Bose, Prof., Department of Sugar Chemistry, National Sugar Institute, Kanpur.

14. Chhabra, Sudesh. Studies on formazans. University of Indore. Dr. D.N. Robert.

15. Chakrabarty, Kakali. Chemical components of some lenguminous plants and synthesis of polyphenols using singlet oxygen, thallium (III) and cerium (IV) salts. Meerut University.

16. Dubey, D.D. Genesis and characterisation of salinity and alkalinity hazards of medium black soils of Indore regions. University of Indore. Dr. G. P. Verma.

17. Flora, Swaranjeet Singh. Studies on lead intoxication. Kanpur University. Dr. S.K. Tandon, 4, Dr. R.K. Tandon Road, Lucknow.

18. Gujral, B.S. A study of conversion of rice-husk to ion exchanger. Meerut University.

19. Gupta, Abha. Micellar behaviour of ionic surface active agents in solution. Meerut University.

20. Gupta, Achla. Studies on structural and biological aspects of transition metal complexes. Meerut University.

21. Gupta, Jai Ram. Chemical and biochemical studies on trace metals in diabetes mellitus and malnutrition. Kanpur University. D. S.N. Ghatak. Division of Biochemistry, Central Drug Research Institute Lucknow.

22. Gupta, Naresh Chand. Synthesis and structural studies of some heavy metal ionscomplexes with nitrogen oxygen and sulphur donor ligands. Meerut University.

23. Gupta, Poonam. Serum lipid profile in children of patients of myocardial inferction. Meerut University.

24. Gupta, Virendra Swarup. Studies on some rare earth complexes of dithiocarboxylic acids. Meerut University.

25. Harish Chandra. Studies on toxic effects of cyanide on industrial workers. Kanpur University. Dr. C.R. Krishnamurti.

26. Jain, Indira. Ziroconium and uranium complexes of Schiff bases. University of Indore. Dr. K.K. Chaturvedi.

27. Jain, Rakesh Kumar. Studies on chemical synthesis of immunostimulants and their interaction with model membrane systems. Kanpur University. Dr. G.M. Gupta, Scientist, Central Drug Research Institute, Lucknow.

28. Kaicker. P.K. Synthesis of fluororesin monomers. Meerut University.

29. Kotnala, Anil Kumar. Synthesis and structural studies of some transitional metal ion complexes involving N, O, and S as donor atoms. Meerut University.

30. Madhu. Studies on the production of dextranase. Kanpur University. Dr. K.A. Prabhu, Asstt. Prof., Department of Biochemistry, National Sugar Institute, Kanpur.

31. Mahendra Pratap. A comparative study of the emulsions and microemulsions using modified proteins as emulsifying agents. Meerut University.

32. Mittal, Prem Singh. Physico-chemical studies of some pyrimidyl thioureas. Meerut University.

33. Mittal, R S. Studies on chemical transformations of polyphenols by higher valent metal ions. Meerut University.

34. Mohammed Farroq. Chemical studies on air pollutants and their biological effects. Kanpur University. Dr. M. U. Beg, 50, Mohd. Ali Cwynne Road Lucknow.

35. Pandey, Gopal Krishna. Monitoring and abatement of organic chemicals in the industrial working environment. Kanpur University. Dr. G.N. Pandey, Head, Department of Chemical Engineering, Harcourt Butler Technological Institute, Kanpur. Dr. S.R. Trivedi.

36. Pramod Kumar. Kinetics and mechanism of oxidation of some cycloalcohols by t-(BUOCL). Meerut University.

37. Ramesh Kumari. Physico chemical studies of some aromatic acetoacetamides. Meerut University.

38. Rastogi, Pawan Kumar. Synthesis and properties of heterocyclic compounds of medicinal interest. Meerut University.

39. Rastogi, Sharad. Phytochemical and synthetic studies on some naturally occuring polyphenols. Meerut University.

40. Saigal, Suman. Biochemical studies on pesticides. Meerut University.

41. Saxena, Meenu. Chemistry of terpenes : Study of some electrophilic additions reactions of mono and *sesquiterpenoidal* compounds. Kanpur University. Dr. Ganesh Chandra.

42. Saxena, Nalini. Studies on (plasmodium-knowlesi) malarial parasite with special reference to corbohydrate metabolism. Kanpur University. Dr. V.C. Pandey, Division of Biochemistry. Chattar Manzil, Central Drug Research Institute, Lucknow.

43. Saxena, Prabhat Kumar. Synthesis and characterization of elastomeric polyurethanes. Kanpur University. Dr. G. N. Mathur, Department of Chemistry, Harcourt Butler Technological Institute, Kanpur.

44. **Shakeel Ahmad.** Kinetics of oxidation of some organic compounds in solutions. Kanpur University. Dr. Kunj Bihari, M-2, Teachers Flat Chetham Lines, Allahabad.

45. Shamshad Ahmed. Chemistry of natural products. Meerut University.

46. Sharma, K.N. Physico-chemical studies of the complexes of. 5-chloro-2, 4-dihydroxy phenones and their oximes. Meerut University.

47. Sharma, Umesh Prasad. Studies on changes in the chemical constitution of Ghee (Butter, fat) during exposure to Gamma irradiation. Kanpur University. Dr. A.K. Vashishtha, Prof., Department of Oil and Paint Technology, Harcourt Butler Technological Institute, Kanpur.

48. Singh, Rajesh Pratap. Chemical and biochemical studies on xenobiotics and microbial differentiation. Kanpur University. Dr O.P. Shukla, Scientist, Central Drug Research Institute, Lucknow.

49. Singh, Vijai Shankar. Evaluation of certain biochemical parameters for diagnosis and prognosis in malignancies. Meerut University.

50. Soam, Dhananjay. Physico-chemical studies on the binding of some biologically active metals and detergents with proteins. Meerut University.

51. Srivastava, Satya Prakash. Effect of fillers Rc enforcements on degradation of polycaprolactum. Kanpur University. Dr G.N. Mathur, Harcourt Butler Technological Institute, Kanpur.

52. Subhash Chandra. Chemical investigation on some indigenous plants. Meerut University.

53. Suraj Pal. Study of blue perchromate or the so-called blue percromic acid prepared with nicotinic acid. Meerut University.

54. Surendra Pal Singh. A study to establish certain biochemical norms in normal, healthy Indian adult human subjects. Meerut University.

55. Srivastava, Deepak Kumar. Chemical and biochemical studies on amoebic differentiation. Kanpur University. Dr O.P. Shukla, Central Drugs Research Institute, Lucknow.

56 Tripathi, Puspa. Investigation of ion exchange membrane electrodes for potentiometric studies. Kanpur University. Dr S.D. Pandey.

57. Tripathi, Santosh Kumar. Chemistry of natural products from indigenous medicinal plants. Kanpur University. Dr G.S. Niranjan. 404, New Ram Nagar, ORAI.

58. Trisev Kumar. Physical properties of calcium salts of amino substitutedfatty acids. Meerut University.

59. Tyagi, Poonam. Studies on fatty acid composition and glyceride structures of lesser known oils. Kanpur University. Dr A K. Vasishtha, Harcourt Butler Technological Institute, Kanpur.

60. Verman, Anita. Studies on structural and fungicidal aspects of transition metal complexes of heterocyclic compounds. Meerut University.

61. Verma, Ram Krishna. The role of dielectric permittivity on the transformation of some strong iodine molecular complexes into ions and their nature structural energetics. Kanpur University. Dr R. Sahai, MIO 71. Indira Nagar, Kanpur.

Engineering

1. Rama Iyer, S. Stability studies on power systems. University of Kerala. Dr. S. Hariharan, Prof. Department of Electrical Engineering, College of Engineering, Trivandrum,

2. Sastri, K.S. Studies on continuous bulk polymerisation of butadiene in tubes. Kanpur University. Dr G.N. Mathur, Head, Department of Platics Technology, Harcourt Butler Technological Institute, Kanpur.

3. Suhair, A. Long term planning of integrated power system. University of Kerala. Dr K. Ramachandran, Prof. Department of Electrical Engineering, College of Engineering. Trivandrum.

BIOLOGICAL SCIENCES

Botany

1. Gupta. V.B. A contribution to the flora of Raisen District, Madhya Pradesh. University of Indore. Prof. M.S. Gujaral, Head, Department of Botany, Holkar Science College, Indore.

Zoology

1. Arora. Neelam. Studies on histopathological and histochemical changes induced by two pesticides on some organs of a teleost. University of Indore. Dr S.K. Kulshrestha, Head, Department of Zoology. Govt. College, Mhow (M.P.)

2. Patil, S.D. Studies on the intestinal absorption of sugars is pigeon, Columbaiivia (Gmelin). Mangalore. Dr S.N. Hedge, Reader, Department of Bio-Sciences, Postgraduate Campus, Konaje, Mangalagangotri.

3. Prakash, K. Studies on some intestinal disaccharidases of pigeon, columba levia (Gmelin). Mangalore University. Dr S.N. Hegde, Reader, Department of Biosciences, Postgraduate Campus, Konaje, Mangalagangotri.

4. Sharma. Preeti. Studies on the respiratory organs of certain fishes found in polluted water of Indore industrial complex. University of Indore. Prof. R.S. Shrivastava. Head, Department of Zoology, Holkar Science College. Indore.

Medical Sciences

1. Balakrishna Murthy, P. Cytogenetic and cytokinetic studies in protien energy malnutritions. Mangalore University, Dr M. Abdul Rahiman, Head, Department of Biosciences, Postgraduate Campus, Kanaje, Mangalagangotri.

2. Giridharan N.V. Studies on LDH-x and carnitine in male reproduction. Mangalore University. Dr M N. Madhyastha, Reader, Department of Postgraduate Studies and Research in Bio-Sciences, Postgraduate Campus, Konaje, Mangalagangotri.

Agriculture

1. Brahm Singh. Effect of seasons of planting and harvesting on growth yield and jice quality of different sugarcane varieties. Meerut University.

2. Chandra Mohanan. R. Colletotrichum SPP. on cacao in south India. Mangalore University. Dr K.M. Kaveriappa, Reader, Depattment of Postgraduate Studies and Research in Biosciences, Postgraduate Campus, Konaje, Mangalagangotri.

3. Om Prakash. Response of summer green gram to dates of seeding, jnter and intra-row spacings and phosphorus fertilization. Meerut University.

4. Singh, Brij Pal. The residual effect of proceeding summer crops on growth, yield and nutrient uptake of rice. Meerut University.

5. Singh, Desh Raj. Direct and residual effect of methods of application, sources and levels of zinc on growth, yield and quality of berseem and jowar fodders. Meerut University.

6. Singh, Gordhan. Agronomic manipulation to promote yield of late sown barley (Hordeum vulgure L) DL-88. Meerut University.

7. Singh. Lekh Raj. Response of Raj, Brassica juncea (L) to nitrogen levels under varying spacings at different plantings dates. Meerut University.

8. Singh, Ompal. Possibilities and prospects of starter solutions i.e. urine, dung and poulty manure on the growth, yield and quality of potato (Solanum tubersum L). Meerut University.

9. Singh, Shish Pal. Response of pigeon pea (cajanus cajan (L) millsp.) Variety 'type 21' to plant density and phosphorus fertilisation under rainfed conditions. Meerut University.

10. Singh, Vikram. Effect of nitrogen sources under different soil moisture regimes in sugar-cane production. Meerut University.

11. Singh, Vimla Shankar. Study on the response of guar. (Cyamposis tetragonoloba (L.) Taub., varieties to row spacing and phosphorus application. Meerut University.

12. Yadav. Ram Nawal. Effect of different soil moisture regimes and straw mulch on the growth and yield of various varieties of mung bean under spring planted condition Meerut University.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Chattoraj, Debidas. Stress distribution at the foot of columns on elastic foundation. University of Calcutta.

2. Goswami, Gopi Kant. Certain Brans-Dicke solutions and their cosmological applications. University of Gorakhpur.

3. Khan, Kalam Ahmad. Certain investigations in Finsler spaces and their hypersurfaces. University of Gorakhpur.

Statistics

1. Ghose, M.K. Use of order statistics in statistical quality control. Dibrugarh University.

Physics

1. Bharati, Rajendra. Electrical conduction in some of the 3d-transition metal tungstates. University of Gorakhpur.

2. Chutia, Jayanti. Conduction mechanism and dielectric properties in thin polymer films. Dibrugarh University.

3. Ghosh, Alpana. Investigations on the electrical conductivity of some organic compounds. University of Calcutta.

4. Gupta, Gyanendra Kumar. Electrical properties of liquid crystals. Meerut University.

5. Jindal, Anil. Study of genetic markers and reproductive performance among the Dawoodi Bohras of Udaipur, Rajasthan. Punjabi University.

6. Patil, Maruti Ganapati. Luminescence studies of Ca S : Ag : Dy phosphors. Shivaji University.

7. Ravinder Kaur. Nuclear spectroscopic studies in certain medium and heavy weight nuclei. Punjabi University.

8. Sarma, Dilip. On the emission and correlation of electromagnetic waves of different frequencies from EAS. Gauhati University.

9. Sawhney, Gulshan Lal. Some applications of ^{57}Fe and ^{119}Sn Mossbauer spectroscopy. University of Delhi.

10. Sen, Dipak Kumar. Studies in alpha-decay of rare-earth nuclei and some systematics of odd : A spectra in trans-thorium regions. Indian School of Mines.

11. Singla, Sham Lal. Some contributions to PBIB designs. Punjabi University.

12. Usha. Study of some problems concerning diffusion and thermalization of neutrons in graphite and beryllium. University of Delhi.

Chemistry

1. Annapurna, D. Synthetic Studies in heterocyclic field: Search for new fluorescent brightening agents. Kakatiya University.

2. Badalkar, Alka. Study of some organic acyl azides. Jiwaji University.

3. Barkataki, Debadatta. Studies on the use of orgonic complex forming reagents in the determination of a few metals. Gauhati University.

4. Budni, Mudiyappa Laxmappa. Studies of donor acceptor systems. Karnatak University.

5. Desai, Gita Chhotubhai. Studies oximinobenzoyl acetarylamides αβ chelating reagents. South Gujarat University.

6. Harish Chandra. Kinetics and mechanism of oxidation of some alcohols by hexacyanoferrate (III). Meerut University.

7. Kamdar, G.C. Studies on compounds science of medicinal interest. Saurashtra University.

8. Kapur, Veena. Synthesis and spectroscopy of transition metal complexes involving biologically important ligands. Meerut University.

9. Mahapatra, Kamesh Chandra. Studies on kinetics and mechanism of some oxidation reactions. Berhampur University.

10. Makkar, Sneh. Electrochemical behaviour of substituted nitrobenzenes in non-aqueous media. University of Delhi.

11. Mendiratta, Jagdish Chander. Uptake of nutrients N, P, K & Zn, Mn, Cu by wheat in saline alkali soils. Jiwaji University.

12. Mittal, Madhu. Studies on the chemistry of transition metal complexes of 4:5-Dimethyl-2-hydroxy acetophenone and its oxime. Meerut University.

13. Nanda, Bata Krushna. Properties of ions in aqueous, non-aqueous and mixed solvents : Behaviour of azide ion. Sambalpur University.

14. Panwar, Sewakram. Study in the chemistry of flavonoids. Vikram University.

15. Parmar, Archana R. Anion-exchange studies of metal ions in sodium nitric organic solvent media. Jiwaji University.

16. Rama Krishna Pillai, R. Siva. Salt effects in the solvolysis of some acid phthalates in aqueous solution. University of Kerala.

17. Ravindra Nath. Studies on the complex formation of divalent metal ions with bidentate Schiff's bases derived from o-hydroxycarbonyl compounds and monoamines. Jiwaji University.

18. Reddi, G.S. Studies on blus chromium peroxy chromato with special reference to the kinetic studies of its decomposition products. Jabalpur University.

19. Sabde, Damodar Shamrao. Studies of acid base reactions in non-aqueous solvents. Nagpur University.

20. Saleem, Syed Hasan Immam. Genesis and characterization of saline alkali soils of Chambal Command Area in Madhya Pradesh. Jiwaji University.

21. Sampurna, Tarigopula. Chemical and antimicrobial studies of plant products. University of Saugar.

22. Sangari, Harpal Singh. Preparation and characterisation of some transition metal dithiocarbamates. University of Delhi.

23. Shah, R.R. Studies on organic sulphur compounds as drug potential. Bhavnagar University.

24. Sharma, Ravinder Kumar. Studies on organophosphonate esters. Jiwaji University.

25. Tare, Manohar Purushottam. Studies in structural and electrical properties of hetaerotite and related oxides. Nagpur University.

Earth Sciences

1. Dubey, Dinesh Prasad. Sedimentological studies of certain selected Vindhyan sections around Rewa, Madhya Pradesh. Awadhesh Pratap Singh University.

2. Harinath Babu, Thangella. Magnetic field and laboratory studies on chromite ore deposits of Boula-Naushi belt, Keonjhar District, Orissa State: India. Andhra University.

3. Kochhar, Naresh Nath. Study of tusham igneous complex, Hissar (India). Panjab University.

4. Raina, Kundan Lal. Petrochemistry and geochemistry of the igneous rocks in and around Srinagar, Kashmir Himalaya. University of Jammu.

5. Sharma, Surinder Kumar. Petrological studies of South Eastern part of kapias grante massif, Doda District, Kashmir Himalayas. University of Jammu.

Engineering & Technology

1. Chandrasekhara Sastry, R. Heat transfer studies of single and two-phase flow in straight and coiled tubes. Kakatiya University.

2. Ghosh, Dhrubajyoti. Ecological study of some selected urban and semi-urban centres of West Bengal and suggesting certain controls of the ecosystem. University of Calcutta.

3. Jagannadha Rao, Pasumarthi. Some aspects of torsion and combined loadings in reinforced and prestressed concrete. Andhra University

4. Munirudrappa, N. Dynamic response of bridges and earth quake response of building-foundation systems. Bangalore University.

5. Naimathullah, Syed. Kinetics of esterification of oleic acid and palmitic acid with methanol using Zeo-Karb 225 resin as catalyst, Kakatiya University.

6. Sunder Raj, T.V. Stochastic simulation of daily flows in Godavari basin. Kakatiya University.

BIOLOGICAL SCIENCES

Biochemistry

1. Ray, Kunal. Studies on biochemical interaction of antimitotic drugs to tubulin. University of Calcutta.

2. Sarkar, Saumyendranath. Studies on the molecular mechanisms of DNA repair. University of Calcutta

Microbiology

1. Satwinder Singh. Utilization of dairy industry projects for the production of vitamin B_{12} by propionibacterium spp. *Punjab Agricultural University.*

Botany

1. Awasthy, Devender Kumar. Ontegenetical studies in the family amaryllidaceae. Meerut University.

2. Chakraborti, Syamaprasad. Tissue culture of Indian species of Mrginea and Scilla, their cytological behaviour following in vitro growth and chromosome analysis of different populations of Scilla indica University of Calcutta.

3. Chauhan, Eklavya. Ultrastructural, cytochemical and histoenzymological studies on some aspects of sporophyte development in the moss, Physco mitrium cyathicarpus Mitt. *University of Delhi.*

4 Chawla, Jagpreet. Lipid metabolism of pollen during development and germination. Punjab Agricultural University.

5. Jaolekar, Ashok Jaikrishna. Morphological and histochemical studies in Erio caulaceae. Nagpur University.

6. Jena, Dharani Dhar. Physiological studies on seedlings of certain high-yielding and local varieties of rice. Berhampur University.

7. Khan, Khalid Rasheed. A study of microflora of fruits and vegetables marketed in Bangalore with special reference to pathogenic fungi. Bangalore University.

8. Mohanty, Debendra Prasad. Physiological and biochemical studies on the effect of transpiration reducing chemicals on plants. Utkal University.

9. Pandey, Arun Kumar. A study of natural plant virus inhibitors. University of Gorakhpur.

10. Rajat Mohan. Response of N-dimethylamino succinamic acid (B-995) to forage crops. Jiwaji University.

11. Rama Rao, N. Physiological and biochemical changes associated with cotton hair development. Saurashtra University.

12. Ranbir Singh. Variability in yield and quality components in fodder oats under different environments. Jiwaji University.

13. Ranganath, R.M. *Morphological and cytological* studies in Acanthacae. Bangalore University.

14. Sharma, Deo Dutt. Cambium and its derivatives in some tropical trees: Organization, structure and seasonal behaviour. University of Delhi.

15. Shukla, Abhya. Studies on a fungal complex of brinjal, solanum melongenal. Jiwaji University.

16. Swain, Arati. Studies on the variability, ecology and loss caused by Corticium sasaki, the causal organism of Sheater blight of rice. Utkal University.

Zoology

1. Arbansjit Kaur. Morphology, *histochemistry* and biochemistry of the male reproductive *organs of soft furred* field rat, Rattus moltada. Punjab Agricultural University.

2. Bhardwaj, Naresh Gopal. Effects of dietary cadmium and zinc on the liver and kidney of albino rats. Meerut *University.*

3. Deshmukh, Manik Bajirao. *Studies of the digestive* and respiratory enzymes in the post-embryonic stages *of the* housefly Musca domestica Nebulo F. Jiwaji University.

4. Kachole, V.P. Assessment of responses of crops and weeds against a few herbicides. Vikram *University.*

5. Kaila, Uma. Interaction of methyl-xanthine and other purines with xanthine oxidase. University of Indore.

6. Kale, Gorakhnath Shankar. A study on freshwater mussle. Shivaji University.

7. Kharche, Wasudeo Wamanrao. Studies on some aspects of lipid metabolism in the acquatic beetle, C. tripunctatus L. Nagpur University.

8. Lamba, Virender Jeet. Steroids in the catfish, Heteropneustes fossilis (Bloch): Circannual and circadian rhythms in plasma levels and role in vitellogensis and Oocyte maturation. University of Delhi.

9. Nagendran, R. Studies on some aspects of ecology and ethology of a few Cyprinidae. Bangalore University.

10. Nawab Mohammad Mesbahul. Studies on brinjal shoots and fruit borer, Leucinodes orbonalis Guen under Assam condition. Gauhati University.

11. Patankar, Vijay Bhalchandra. Mucopolysaccharide histochemistry of bat Kidney. Shivaji University.

12. Shantakumar, J Martin. Biological and bio-chemical studies of some edible prawns of Gulf of Kutch, Jodiya. South Gujarat University.

13. Shivender Kumar. Studies on the respiratory organs of Calotes versicolor Daud (Agamidae, Lacertilia) with emergence to their functional morphology neurohistology, histo-chemistry and respiratory activities under normal and experimental conditions. Jiwaji University.

14. Shrivastava, Chander Prakash. Studies on bionomics and effect of synthetic insecticides in Cimex hemipterus (Febicius) Jiwaji University.

15. Singh, Chittranjan Kumar. Studies on some biochemical aspects of rat and human uterine fluid. Magadh University.

16. Singh, Ramendra Kumar. Correlative studies of neuroendocrine organs and reproduction in female Chrysocoris stolli (Wolff) (Hateroptera : Pentatomidae). Magadh University.

17. Sinha, Rajesh Kumar. Studies on the olfactory organs of certain fresh-water Indian teleosts. Magadh University.

18. Vij, Usha. Effects of rearing citrus butterfly Papilio demoleus Linnaeus Lepidoptera : Papilionidae on different food sources on its development, reproduction and behavioural responses. University of Delhi.

Medical Sciences

1. Mathur, H.S. Medical geography of common disease in Rajasthan. University of Rajasthan.

Agriculture

1. Bhopal Singh. Comparative performance of wheat (Triticum aestivum Linn) cultivars in solid and mixed stands under varying fertility and plant density levels. Himachal Pradesh Krishi Vishva Vidyalaya.

2. Lomte, Maroti Haribhau. Studies on growth, yield and quality of summer groundnut, Arachis hypogaea linn, var Latur 33. Marathwada Agricultural University.

3. Mandal, Nakul Chandra. Post harvest diseases of fruits and vegetables in West Bengal. Visva-Bharati.

4. Rajender, Kumar. A study of gone action and stability in germplasm complexes of maize (Zea mays L.) Himachal Pradesh Krishi Vishva Vidyalaya.

5. Rao, Debiprasad. Study of orchard efficiency analysis of mango. Mangifera indica L. University of Calcutta.

6. Ray, Pradosh. Studies on a chemoautotroph, Thiobacillus ferroxidans capable of oxidising pyrite in coal. University of Calcutta.

7. Sharma, Vijay Kumar. Studies on nitrogen nutrition and metabolism *in apple plants*. *Himachal Pradesh Krishi* Visva Vidyalaya.

Veterinary Science

1. Eknath, Nivsarkar Anil Kumar. Selection for maximising productivity (*Meat* & *wool*) in *Malpura* & *Sonadi* Breeds. Punjabi University.

2. Gupta, Subhash Chander. Physiological and histomorphological studies on the reproductive tract of turkey toms of different ages and their response to human chorionic *gonadotrophin*. Haryana *Agricultural* University.

3. Kapoor, Govind. Studies on mycoplasma infection in *the gentil tract of* sheep and *goats with special reference* to prevalence and pathogenicity. Chandra Shekhar Azad University of Agriculture and Technology.

4. Mishra, Shyam Sunder. Studies on traumatic reticulopericarditis in bovines with particular reference to the surgical management. C.S.A. University of Agricultural and Technology.

5. Singh, Sutaj Bhan. Appcliation of linear and nonlinear functions on milk production and some of its constituents in dairy cattle breeding. Haryana Agricultural University.

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Jaiswal, N.K. and Kolte, N.V. *Development of drought-pone areas.* Hyderabad, National Institute of Rural Development, 1981. xi, 498p.

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INDIAN INSTITUTE OF TECHNOLOGY
KANPUR

Advertisement No. 30/81

Applications are invited for the following positions in various departments/programmes in this Institute:

Name and scale of the post	Total Number of posts	Number of posts allotted to Deptt./Programme	Name of Department/Programme
1	2	3	4
i) **Senior Technical Assistant** (Rs. 550-25-750-EB-30-900	5	1 (Reserved for S.C. candidate)	Chemistry
		2 (including one reserved for S.C. candidate)	Mechanical Engg.
		1 (Reserved for S.T. candidates)	Physics
		1 —	Laser Lab. (Physics Deptt.)
ii) **Technical Assistant** (Rs. 425-15-500-EB-15-560-20-700)	15	1 (Reserved for S.C. candidate)	Aeronautical Engg.
		2 —	Physics
		1 (Reserved for S.C. candidate)	Civil Engg.
		3 (including 2 reserved for S.C. candidates)	Electrical Engg.
		1 (Reserved for S.C. candidate)	Humanities and Social Sciences
		3 (including one reserved for S.C. candidate)	Metallurgical Engg.
		1 (Reserved for S.T. candidate)	Industrial & Management Engg.
		1 (Reserved for S.T. candidate)	Nuclear Engg. and Technology
		1 —	Van de Graaff
		1 —	Laser Lab. (Physics Deptt.)
iii) **Mechanic Gr. 'A'** (Rs. 380-12-500-EB-15-560)	11	1 (Reserved for S.C. candidate)	Aeronautical Engg.
		1 (Reserved for S.C. candidate)	Chemical Engg.
		3 (including 2 reserved for S.C. candidates)	Electrical Engg.
		3 (including 1 reserved for S.C. candidate)	Mechanical Engg.
		1 —	Physics Deptt.
		1 (Reserved for S.T. candidate)	Liquid Nitrogen Facility
		1 (Reserved for S.T. candidate	Van de Graaff
		1 —	Laser Lab. (Physics Deptt.)
iv) **Mechanic Gr. 'B'** (Rs. 330-8-370-10-400-EB-10-480)	5	2 (including one reserved for S.C. candidate)	Electrical Engg.
		1 (Reserved for S.C. candidate)	Mechanical Engg.
		1 (Reserved for S.T. candidate)	Physics Deptt.
		1 —	Laser Lab. (Physics Deptt.)
v) **Senior Laboratory Assistant** (Rs. 380-12-500-EB-15-560)	2	2 (including 1 reserved for S.C. candidate)	Metallurgical Engg.
vi) **Labaratory Assistant** (Rs. 260-8-300-EB-8-340-10-380-EB-10-430)	1	1 —	Aeronautical Engg.
vii) **Draftsman Gr. I** (Rs. 425-15-500-EB-15-560-20-700)	1 likely to be 3)	1 (Reserved for S.C. candidate)	Elecrtical Engg./Mechanical Engg.
viii) **Mechanic Gr. 'C'** (Rs. 260-6-326-EB-8-350)	1	1 (Reserved for S.C. candidate)	Liquid Nitrogen Facility

QUALIFICATIONS AND EXPERIENCE

Aeronautical Engineering Department

Technical Assistant: (1 post)

Diploma in Electronics plus four years' experience in maintenance, calibration and operation of electrical and electronic *equipments and delicate instruments* such as micro-computer, digital data loggers, recorders, sensors, etc., associated with the wind tunnels. Aptitude to work on aircraft instruments will desirable.

Mechanic Grade 'A': *(1 Post)*

High School plus Diploma in Mechanical Engineering.

OR

High School plus ITI certificate in the trade of fitter plus five years' experience in maintenance and operation of heavy duty air compressors, air dryers, air storage tanks, valves and associated equipments, maintenance and operation of wind tunnels.

Laboratory Assistant: (1 Post)

High School (Science) and ITI certificate in the trade of Fitter. Experience in the operation of wind *tunnels and the associated* equipments desirable.

CHEMICAL ENGINEERING DEPARTMENT

Mechanic Grade 'A': *(1 post)*

High School *plus ITI certificate in* the trade of welding plus five years' experience in high pressure weilding related to chemical equipments. Must have experience in argon arc welding.

CHEMISTRY DEPARTMENT

Senior Technical Assistant: (1 post)

Diploma in Electronics plus eight years' experience in the service and *maintenance of sophisticated* instruments used in Chemical research like IR, UV, NMR and EPR spectrometers.

CIVIL ENGINEERING DEPARTMENT

Technical Assistant: (1 post)

Diploma in Civil Engineering plus four years' field experience in survey projects *involving triangulation*, tacheometry, plane table, traversing, chain survey, etc. Must have experience in maintaining the general survey equipment.

ELECTRICAL ENGINEERING DEPARTMENT

Technical Assistants: (3 posts)

Diploma in Electrical or Electronics Engineering plus four years' experience.

OR

High School plus ITI trade certificate in Electrical or Electronics trade plus nine years' experience.

Experience for the above posts may be in one or more of the following areas.

- —*Electronic circuits* design/fabrication and testing using solid state devices and integrated circuits.

—Semiconductor devices and fabrication.
—Microwave techniques and measurements
—Electrical machines
—Power electronics and control systems

Mechanics Grade 'A'; (3 posts)
High School plus Diploma in Electrical or Electronic Engineering.

OR

High School plus ITI trade certificate in electrical or electronic trade plus five years' experience.

Mechanics Grade 'B': (2 posts)

Post-1 High School plus ITI certificate in trade of electrical or electronic plus 3 years' experience. Experience for the above (Mech A/B) may be in one or more areas mentioned above for the T.A. position as well as in making printed circuits.

Post-2 High School plus technical qualification in any trade plus 3 years' experience. Experience in operating and maintaining reprographic machines like electrostatic copier, electronic stencil cutting machine etc.

Draftsman Grade I
Diploma in mechanical drafting plus four years' experience.

OR

High School plus ITI certificate in mechanical draftsmanship plus nine years' experience. The candidate must have ability to convert ideas into design and manufacturing drawings.

HUMANITIES AND SOCIAL SCIENCES DEPARTMENT

Technical Assistant: (1 posts)
Diploma in Printing Technology plus four years' experience in handling graphic art equipments in a Fine Art Studio and printing machines. Those possessing five-year diploma in Fine Art with two years' experience in any fine art studio may also apply.

METALLURGICAL ENGINEERING DEPARTMENT

Technical Assistants: (3 posts)

Post-1 B.Sc. with Physics/Diploma in Electronics plus four years' experience in repair of electronic/electrical instruments such as temperature controllers, recorders, pH meters, oscilloscopes, L-C-R bridges, induction furnaces, etc.

Post-2 B.Sc. with Physics or Chemistry/Diploma in Ceramic Technology with four years' experience in refractories/potteries. Must have ability to fabricate ceramic shapes by slip casting, processing, extrusion and firing, maintenance of electrical and fuel-fired furnaces.

Post-3 B.Sc. with Physics or Chemistry/Diploma in Metallurgy with four years' experience in powder metallurgy & metal working with knowledge of equipments associated with these areas.

Senior Laboratory Assistants: (2 posts)
B.Sc. with physics or chemistry/Diploma in Metallurgy.
Experience in Physical Metallurgy laboratory especially in metallography desirable.

MECHANICAL ENGINEERING DEPARTMENT

Senior Technical Assistants: (2 posts)
Diploma in Mechanical Engineering plus 8 years' experience.

OR

High School plus ITI certificate in any mechanical engineering trade with 13 years experience.

Post-1 Experience in handling temperature measuring instruments and refrigerants. Certificate in Boiler Operations desirable.

Post-2 Experience in handling sophisticated instruments like comparators, microscope, Tallysurf, etc. Must be capable of assisting in instructions to the students in the laboratories.

Mechanics Grade 'A': (3 posts)
High School plus Diploma in Mechanical Engineering.

OR

High School plus ITI certificate in the specific trade plus 5 years' experience.

Post-1 Experience in working on Machine Tools in Manufacturing Science/Production Engineering Laboratories, ability to assist in instructions to students and have initiative to help in developmental work.

Post-2 Experience in Internal Combustion Engines/Hydraulic Machines and ability to assist in instructions to students.

Post-3 Experience in Refrigeration and Airconditioning. Handling refrigeration equipments and temperature measuring instruments; ability to assist instructions to students.

Mechanic Grade 'B': (1 post)
High School plus ITI certificate in trade of electronics with three years' experience in repairing electronic instruments.

Draftsman Grade I
Diploma in Draftsmanship plus four years' experience.

OR

High School plus ITI certificate in mechanical draftsmanship plus nine years' experience.
The candidate must have knowledge of ISI standards and experience in detailing mechanical systems, preparing assembly drawings and tool designs.

INDUSTRIAL AND MANAGEMENT ENGINEERING PROGRAMME

Technical Assistant: (1 post)
Diploma in Electronic Engineering plus four years' experience in electronic circuit design, repair and maintenance of electrical and electronic equipment.
Preference will be given to those who have familiarity with the equipments utilized in industrial engineering laboratories.

PHYSICS DEPARTMENT

Senior Technical Assistant: (1 post)
Diploma in Mechanical Engineering with 8 years experience in fabricating mechanical equipments such as vacuum systems, cryogenic chambers etc., needed for nuclear experiments.

Technical Assistants (2 posts)

Post-1 B.Sc. with Physics plus four years' experience in Teaching laboratories. Should have sufficient experience in coordinating and maintaining the teaching laboratory equipment.

Post-2 Diploma in Electrical/Electronic Engineering with four years' experience

OR

High School plus ITI trade certificate in electronics/radio with nine years' experience.

Experience in designing, fabricating and maintenance of electronic circuits. Preference will be given to a person having experience in integrated circuits.

Mechanic Grade 'A': (1 post)
High School plus ITI certificate in refrigeration and air-conditioning with five years' experience in operating and maintenance of compressors, cryostat designing and fabricating, vacuum systems etc., particularly suited for low temperature work.

Mechanic Grade 'B': (1 post)
High School plus ITI certificate in Turning with three years' experience in vacuum techniques, furnaces, crystal growing etc.

NUCLEAR ENGINEERING AND TECHNOLOGY PROGRAMME

Technical Assistant: (1 post)
Diploma in Mechanical Engineering with four years' experience in handling strain gauges, pressure transducers used in vibration measurements and heat instrumentation.

VAN DE GRAAFF

Technical Assistant: (1 post)
High School plus ITI certificate in Electronics with nine years' relevant experience or Diploma in Electronics with four years' relevant experience.

Experience in Nuclear Accelerator laboratory, familiarity with Nuclear Electronics and Vacuum Systems desirable.

Mechanic Grade 'A' (1 post)
High School plus ITI certificate in Radio Engineering or air-conditioning plus five years relevant experience.
Experience in Nuclear Accelerator laboratory, familiarity with Vacuum Systems desirable.

LIQUID NITROGEN FACILITY

Mechanic Grade 'A': (1 post)
High School plus ITI certificate in TURNING and workshop practices plus five years relevant experience.
Background of running liquid air plant, vacuum techniques and refrigeration equipment desirable.

Mechanic Grade 'C': (1 post)

High School plus ITI certificate in TURNING.

Experience in workshop practices desirable.

LASER LABORATORIES (PHYSICS DEPARTMENT)

Senior Technical Assistant: (1 post)

M.Sc. in Physics +2 years experience.

OR

B.Sc./Diploma in Electronics + 8 years' experience in a Lab./Workshop.

OR

High School and ITI certificate in Electronics + 13 years' experience in the relevant areas.

Technical Assistant: (1 post)

A. i) High School or equivalent.

ii) One / two years' Certificate Training Course in Scientific Glassblowing from Training Centres of the State Small Industries Dev. Corporation.

OR

One-to-two years' apprenticeship training course completed in glassblowing and its allied techniques from any one of the following institutions or from one of similar repute.

(a) TIFR, Bombay (b) BARC, Bombay
(c) All IITs
(d) NPL, Delhi and NPL, Pune

B. 9 years' experience of working under an experienced Hand in a well equipped Glass Shop.

Mechanic Grade 'A': (1 post)

High School+Diploma in Engineering (Mechanical).

OR

High School+ITI certificate in TURNING+5 years' relevant experience.

Mechanic Grade 'B': (1 post)

High School+6 years' experience in fabricating optical components.

NB: 1 Qualifications may be relaxed by the Selection Committee in case of very good experience and record.

2 Experience may be relaxed by the Selection Committee in case of candidates possessing higher qualifications and excellent records.

3 Selection Committee can recommend appointments to lower position, if necessary.

Posts are permanent and carry retirement benefits in the form of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to Central Government employees stationed at Kanpur. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route. All applicants from Govt./Semi-Government organisations, public undertakings should forward their applications through proper channel.

Applications for Senior Technical Assistant/Technical Assistant/Draftsman Gr. I posts should be made on the prescribed forms obtainable free of charge from the Assistant Registrar, Recruitment Section, Room No. 483, Faculty Building of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size accompanied by an Indian Postal Order of **Rs. 7.50 (1.87 for Scheduled Caste/Scheduled Tribes candidates)** and for the posts of Senior Laboratory Assistant/Laboratory Assistant/Mechanic Gr. 'A'/Mech. Gr. 'B'/Mech. Gr. 'C' should be made on plain paper, stating qualifications, experience, date of birth/age whether member of SC/ST, pay and present scale of the post now held and other particulars alongwith true copies of certificates and accompanied by an Indian Postal Order for **Rs 3/- (Re. 0.75 paise for Scheduled Caste/Scheduled Tribes candidates)** in the name of Registrar, Indian Institute of Technology, Kanpur.

Applications should reach the Registrar, Indian Insitute of Technology, Kanpur-208016 on or before **January 31, 1982.**

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 28/81

Applications are invited for a post of Research Engineer 'A' in the pay scale of Rs. 700-40-900-EB-40-1100-50-1300 in the Mechanical Engineering Department of the Institute and will be required to work on the developmental activities in the area of Manufacturing Science and Technology.

Qualifications

M. Tech. in Mechanical Engineering with specialization in Manufacturing/Production Engineering.

OR

B.Tech. (or equivalent) degree in Mechanical/Production Engineering with atleast 3 years relevant R&D experience. In meritorious cases the required number of years of experience may be relaxed.

Desirable

Candidates having experience in R&D activities in the manufacturing area will be preferred.

The appointment will be made on contract basis initially for a period of three years and is likely to continue. The post carries the benefits of Contributory Provident Fund. Besides pay, the post also carries allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay may be offered to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications should be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied with a postal order of **Rs 7.50 (Rs 1.87 for SC/ST candidates)**. Preference will be given to SC/ST candidates.

Applicants who are employed in a Government/Semi Government organisation or Institute should send their applications through proper channel, else they will be required to produce a 'NO OBJECTION CERTIFICATE' from their employers at the time of interview.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 (U.P.), India on or before **January 31, 1982.**

PANJAB UNIVERSITY

CHANDIGARH

Advertisement No. 1/82

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alongwith postal order for **Rs. 10/- by 6.2.1982**. Fourteen days extra time is permissible to the persons who have to submit their applications from abroad:

Posts & Scale of Pay

1. Director of Regional Sophisticated Instrumentation Centre, Northern Region-1 (Rs. 1500-60-1800-100-2000-125/2-2500).

2. **Director**, Directorate of Correspondence Courses (Rs 1200-50-1300-60-1900)-1.

3. **Lecturers**: (Rs. 700-40-1100-50-1600).

Punjabi Drama	1	Department of Indian Theatre
Set Designing	1	
Chemical Engg	2	

(Deptt. of Chem. Engg & Tech.)

4. **Instructors** : (Rs 500-20-700-25-900).

Carpentry	1	Department of Indian Theatre
Lighting	1	

5. **Movement Teacher** (Rs. 550-20-650-25-750) (Deptt. of Indian Theatre-1).

6. **Senior Research Fellows** (@ Rs. 800/- p.m. (Fixed) (Deptt. of Chemical Engg. & Technology-7).

7. **Research Fellow** (@ Rs. 700/- p.m. (fixed) (Deptt. of Gandhian Studies-1).

8. **Research Scholar-cum-Demonstrator** (@ Rs. 600/- p.m. (fixed) (Deptt. of Physics-2).

9. **Research Scholar** ((@ Rs. [illegible]00/- p.m. (fixed)) (Deptt. of Political Science-1).

10% Scholarships/Fellowships will be reserved for Scheduled Castes and Scheduled Tribes candidates, provided they fulfil the minimum qualifications laid down for the award of such fellowships. In case qualified candidates are not available, reserved scholarships/fellowships will be treated as unreserved.

15% posts of Lecturers will be reserved for the members of the Scheduled Castes and 2% for the members of the Scheduled Tribes, but these will be filled up by others if no suitable Scheduled Castes/Scheduled Tribes applicant is available.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after due date will not be entertained. Attested copies of Certificates in support of qualifications for Matriculation/School Leaving, graduation as also post-graduate examinations be attached to the application. Serving employees may, however, send their applications on the prescribed proforma direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of a 'No Objection Certificate' from their employers. Canvassing in any form will disqualify the candidate.

Application forms alongwith detailed qualifications can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of **Rs. 2/-** or by making a written request to the Finance & Development Officer, Panjab University, accompanied by a self-addressed stamped envelope of 23 x 10 cms. and postal order for **Rs. 2/-** drawn in favour of the Registrar, Panjab University, Chandigarh.

For Details See Instructions for Candidates Enclosed with the Application Form.

UNIVERSITY OF POONA

Applications in the prescribed form are invited for the following posts on or before **30-1-1982.**

Professors

Physics (3), English (1), Mathematics (1), Statistics (1).

Readers

Physics (1), Philosophy (1), Statistics (1), Sanskrit (1), Veda or Vyakarana in CASS (1), Taxation Laws (1).

Lecturers

Physics (3), Geography (2), Journalism (1), Chemistry (1), Zoology (1), Library Science (1).

General Qualifications

1. Professor

Must be scholar of eminence, have to his credit research work of independent merit, possess fairly long experience of teaching of Post-graduate Classes and guiding advance research in the respective subjects.

2. Readers

Must possess fairly long experience of teaching of Post-graduate classes and guiding research in the respective subjects.

3. Lecturer

(i) Must have a Doctor's Degree or published work of an equally high standard and (ii) consistently good academic record with First or High Second Class (B+) at Master's Degree in a relevant subject or an equivalent Degree of a foreign University.

Provided that if the Selection Committee is of the view that the Research work of a candidate as evident either from his thesis or from his published work is of a very high standard, it may relax any of the prescribed qualifications mentioned above.

Minimum Qualifications

1. Professor

As prescribed by the University for recognition as Post-graduate teacher (by research).

I (i) (a) A first or Second Class Master's degree or a Master's Degree by Research; OR (b) A first or second class Bachelor's degree, with a Master's degree in a subject in which the same is not awarded with classes; OR (c) A Doctor's degree with at least a second class Bachelor's degree OR (d) Any other equivalent degree or degrees of an Indian or a Foreign University.

(ii) (a) Five year's experience of teaching Honours or equivalent cources in the Degree classes and some published independent research work; OR (b) Published independent research work, other than work done for the Ph.D. Degree of acknowledged merit.

2. & 3. Reader and Lecturer

As prescribed by the University for recognition as Post-graduate Teacher (By Papers).

The qualifications shall ordinarily be as follows: Viz: either those under I (i) and (ii) or those under II.

I (i) (a) A First or Second Class Master's Degree or a Master's Degree by Research; **or** (b) A First or Second Class Bachelor's Degree, with a Master's degree in a subject in which the same is not awarded with classes; **or** (c) A Doctor's Degree with at least a Second Class Bachelor's Degree; **or** (d) Any other equivalent degree or degrees of an Indian or a Foreign University:

AND

(ii) (a) Five years experience of teaching Post - intermediate Classes; **or** (b) Some published independent Research work.

II. A Doctor's Degree with a Second Class Master's Degree or the Master's Degree by Research in the subject.

1. Professors of Physics: (Three posts) (U.L.P.).

Posts No. 1 and 2 (One post reserved)
Additional Qualifications

The person having minimum five year's of experience in the experimental work in one of the following fields, will be given preference:

1. Experimental Solid state physics 2. Laser physics 3. Accelerators physics 4. Synthesis of materials 5. Electronics and should have experience of teaching physics education.

Post No. 3

Additional qualifications

The person having minimum five years experience in experimental work in one of the following fields will be given preference:

1. Atmospheric physics 2. Space physics 3. Plasma physics 4. Space Applications 5. Space communication. and should have experience of teaching physics.

2. Professor of English Literature (Reserved Post)

Additional Qualifications

Must have atleast 10 years Post-graduate teaching experience and successfully got Ph.D. and specialised in (a) Area of period of English Literature preferably upto 19th Century; **or** (b) English Literature stylistics.

Qualifications desirable

Experience in teaching and guiding in contemporary English, Grammar and contrastive stylistics with special reference to English and one or more Indian Language.

3. Professor of Mathematics (Lokmanya Tilak Chair)

(Reserved Post)

Qualifications

Outstanding work in areas of Pure/Applied Mathematics.

4. Professor of Statistics : (Reserved Post).

Essential Qualifications

M.A./M.Sc. and Ph.D. or Equivalent published research work in Statistics/Biometry.

Qualifications Desirable

Specialization in :

1. Probability Stochastic Processes,
2. Multivariate Analysis,

OR

3. Statistical Inference.
4. Non-Parametrics Inference.

5. Readers in Physics

(Three Posts).

Qualifications for post in Materials Science.

Additional Qualifications

Should have experience in research work in study of materials. The person having experimental work experience in :

1. Synthesis of materials.
2. Ion Implantation techniques,
3. Positron Annihilation techniques

OR

4. Experimental surface physics.

will be given preference.

The person should have attracted funds and carried out research schemes.

Qualifications for two posts : (Reserved Posts)

Additional Qualifications

Five years experience (experimental) in—

1. Laser Physics.

2. Space Physics.
3. Material Science.

OR

4. Electronics.

6. Reader in Philosophy : (Reserved post)

Additional Qualifications

Post-Graduate teaching experience for minimum five years in—

1. Modern Logic.
2. Indian Logic and Epistemology.
3. Contemporary and Classical Metaphysics.
4. Social and Moral Philosophy

OR

5. Philosophy of Science (Natural or Social).

Published work in the form of scholarly articles, books in any of the above areas.

7. Reader in Statistics : (Reserved Post)

Qualifications : Essential

II Class M.A./M.Sc. and Ph.D. or equivalent published research work in *Statistics/Biometry.*

Qualifications Desirable : Specialization in :

1. Stochastic Processes.
2. Statistical Inference.
3. Multivariate Analysis.

OR

4. Theory of Sampling Designs.

8. Reader in Sanskrit : (Reserved Post)
Qualifications Desirable

1. Knowledge of one or more Modern European Languages.
2. Traditional training in Sanskrit.

Job-requirement

Ability to teach two or more branches as Veda, Vyakarana, Vedanta, Nyaya, Mimansa, Dharmashastra, Alankara and Literature.

9. Reader in Veda or Vyakarana (Temp. post) *(Reserved Post)* (Cnere of Advanced Study in Sanskrit)

Qualifications Desirable

1. Knowledge of one or more Modern European Languages.
2. Traditional training in Sanskrit.
3. Knowledge of Linguistics and/or Avesta.

Job-requirement

Ability to teach Veda or Vyakarana to the Post-Graduate classes, to initiate research programmes in one or two fields from among the Veda, Vyakarana, Nirukta, Shrauta and Pratishakhyas.

10. Reader in Taxation Laws : (Reserved Post)

Essential Qualifications

1. Master's Degree in Law, or Second Class Bachelor's Degree in Law with FCA. 2. Doctor's Degree in Law or published independent Research work or considerable experience of taxation practice.

[**Note :** (a) Candidates with specialization, research, teaching or practice in taxation laws shall be preferred.

(b) If a suitable candidate for Readership is not available, a Lecturer with higher starting salary can be appointed against the post.]

11. Lecturers in Physics : (Three Posts)
Additional Qualifications for two U.L.P. Posts

Experience in the experimental work in :

1. Electronics.
2. Solid State Physics.
3. Lasers.
4. Space Physics.

OR

5. Optics.

The person should have interest in the innovative work in physics education.

Qualifications for third post : (Reserved post).

Additional Qualifications

Theoretical Research work in the field of Solid State Physics.

12. Lecturers in Geography : (Two posts).

Qualification essential for one post

Specialization in Economic Geography.

Qualification for another post : (Reserved post).

Qualifications Essential

Ph.D. in Geography with atleast *three years teaching experience of Post-*Graduate classes and B+ at both degree and Master's level.

Specialization in Economic Geography of climatology.

13. Lecturer in Journalism : (Reserved Post).

Qualifications Essential

1. Diploma/Degree in Journalism/Mass Communication.
2. Three years teaching experience

   OR

   Five years journalistic experience.

Qualifications Desirable

1. Master's Degree in Languages or Special Sciences.
2. Experience of research in mass media subjects for minimum two years.

14. Lecturer in Organic Chemistry : (Reserved Post).

Desirable Qualifications

Published work of high standard.

Specialization

Strong in Organic Reaction mechanism, *Stereo-Chemistry and Physical* methods in organic structure determination.

15. Lecturer in Zoology : (Reserved Post).

Specialization at the *M.Sc.* and Ph.D. levels in :

1. Genetics,
2. Environmental Biology,
3. Experimental Parasitology,
4. Biophysics.

OR

5. Toxicology.

Published Work in one of the above subjects *would be a preferential quali*fication.

16. Lecturer in Library Science : (Reserved Post).

Desirable Qualifications

1. Experience of work in University or Research Library.
2. Knowledge of Marathi.

Scales of Pay

Professor

Rs. 1500-60-1800-100-2000-125/2-2500.

Reader

Rs. 1200-50-1300-60-1900.

Lecturer

Rs. 700-40-1100-50-1600.

Plus allowances admissible under University rules.

Upper Age Limit

Professors 50 years, Readers 45 years and Lecturers 35 years.

N.B. : 1) Candidates belonging to Scheduled Castes, Scheduled Tribes and Denotified Tribes and Nomadic Tribes should produce a certificate to that effect from the Magistrate/Notary.

2) The caste certificate should specify clearly the name of the community to which the candidate belongs.

The prescribed form will be available on request with (1) a self addressed envelope (23 cm. x 10 cm.) *bearing* postal stamps worth **Rs. 1.25** and (2) **Rs. 10/-** *in cash or by a Postal Order* drawn in the name of the Registrar, separately, for each post.

Conditions relaxable higher starting salary admissible in exceptionally capable candidates.

S P. Bhosale
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR

Corrigendum to Advertisement No 23/81

The following qualifications will be applicable for all the posts viz. Professor, Assistant Professor and Lecturer :

"The candidates must have a good academic background, have ability for teaching and independent research as evidenced by good contributions by way of publications of quality in journals of repute or developmental project works of merit in any one of the areas of specialisation."

*The last date for receipt of the appli*cations is also extended **upto 21st January, 1982.**

JADAVPUR UNIVERSITY
CALCUTTA-700032

Employment Notification
No. A2/C 8/81

Dt. 22nd December, 1981

The University invites applications *in the prescribed form for the following posts :*

1. Reader

(a) *Mechanical Engineering—One* Post.

(b) Mathematics—One Post
(c) Matallurgical Engineering—Two Posts.

2. **Lecturer** -
(a) Physics —Two Posts.
(b) Mathematics —Two Posts.
(c) Mechanical Engineering—One Post.

Qualifications for Reader Post at 1(a) & 1(c).

Essential

i) Consistently good academic record with at least high Second Class Master's Degree in relevant subjects of an Indian University or equivalent.
ii) Five years teaching/research/industrial experience of which at least three years must be in teaching at an Engineering degree College/University.

Qualifications for Reader Post at 1(b).
Essential

i) Research degree of Doctorate standard or published work of an equally high standard.
ii) Consistently good academic record with at least high second class Master's degree in the relevant subject of Indian Universities or equivalent
iii) Five years research or teaching experience of which at least three years must be in Post-gruduate level.

Qualifications for Lecturer Posts at 2(a) & 2(b)

Essential

i) Research degree of doctorate standard or published work of an equally high standard.
ii) Consistently good academic record with at least high Second Class Master's degree in the relevant subject of Indian Universities or equivalent.

Qualifications for Lecturer Post at 2(c).

Essential

i) At least high Second Class Master's degree in the relevant subject of Indian Universities or equivalent with consistently good academic record.

Explanatory note in respect of all kinds of posts as at serials No. 1 and 2.

Candidates should either have an average of 55% marks of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations), or 50% marks in each of the two examinations separately.

Desirable for Reader Posts at 1(a) & 1(c).

i) Research degree or published papers of high standard.
ii) Corporate membership in recognised professional bodies.
iii) Ability to guide research.

Desirable for Reader Post at 1(b).

Ability to guide research.

Desirable for Lecturer Posts at 2(a) & 2(b).

Two years' research or teaching experience upto Honours standard.

For one post in 2(b) evidence of specialisation in Numerical Analysis is desirable.

Desirable for Lecturer Post at 2(c).

Teaching/industrial/research experience of two years.

Specialisation for Reader Posts

1(a)—Applied Mechanics/Fluid Mechanics/Heat Power/Machine Design/Production Engineering.
1(b)—Any branch of Applied Mathematics.
1(c)—Foundry Welding, Joining of Metal—One Post.
Extractive Metallurgy/Hydrometallurgy & Electrometallurgy —One Post.

Specialisation for Lecturer Posts

2(a)—Any branch of Theoretical/Experimental Physics—One Post. Radio Physics and Electronics —One Post.
2(c)—Applied Mechanics/Fluid Mechanics/Heat Power/Machine Design/Production Engineering

Scales of Pay

READER
Rs. 1200-50-1300-60-1900/-.
LECTURER
Rs. 700-40-1100-50-1600/-.

Last date of receiving application is **25th January 1982**.

Application forms are obtainable from the University Office during working hours on payment of **Rs. 2**/- or by post on payment of **Rs. 2**/ + **Re. 1**/- as postal charges. No travelling allowance is admissible to candidates called for interview. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their application through proper channel. Choice of the Appointment Committee will not necessarily be confined to applicants only. Canvassing in any form wll disqualify a candidate.

REGISTRAR.

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA

P.O. Mohanpur, Dt. Nadia, West Bengal

Advertisement No. PER(T)/1/82

Applications are invited in prescribed forms for the following posts in the Viswavidyalaya's North Bengal Campus at Cooch Behar in the scale mentioned below with the benefits of D.A. and other allowances as admissible under the rules:

1. (a) Reader in Agril. Extension (One Post)
(b) Reader in Agril. Statistics (One Post).
(c) Reader in Agril. Engineering (One Post).
(d) Reader in Agril. Economics (One Post).

In the scale of Rs. 1200-50-1300-60-1900/-

Qualifications: Essential

(i) A first or high second class Master's Degree in the subject concerned or an equivalent qualification of a foreign University;

(ii) A Doctoral Degree in the relevant subject or **published work** with a good record of **Research;**

(iii) Five years experience of teaching and/or Research of which three years must be as Lecturer or in a post of equivalent rank.

Age: Below 50 years.

2. Lecturer in Agril. Engineering (One Post) in the Scale of Rs. 700-40-1100-50-1600/-.

Qualifications : Essential

(i) A consistently good academic record with first or high second class Master's Degree in relevant subject or equivalent degree of a foreign University;

(ii) A Doctoral Degree in the subject concerned or published research work of an equally high standard.

If a candidate possessing Doctoral Degree or equivalent research work for the post is not available or is not considered suitable, the person possessing consistently good academic record may be considered for appointment, on the condition that he/she will have to attain a Doctorate Degree or show evidence of research work of equivalent high standard within 5 years of his/her appointment failing which he/she will not be eligible to earn increments till he/she fulfils these requirements.

Preference will be given to the candidates having basic degree in Agriculture i.e. B.Sc. (AG.) for the post.

Age: Below 45 years.

Selected candidates will be required to reside at Cooch Behar for all the posts.

Experience and age limit may be relaxable on the recommendations of the Selection Committee in the case of candidates otherwise qualified. A high initial pay in the scale may be granted on the basis of qualifications, experiences and present emoluments.

Applications must be submitted in the prescribed forms obtainable from the office of the Registrar, Bidhan Chandra Krishi Viswavidyalaya, P.O. Mohanpur, Dist. Nadia, West Bengal by remitting crossed Indian Postal Order for **Rs. 8.00 (Eight)** in favour of the Bidhan Chandra Krishi Viswavidyalaya between **11.30 a.m. and 4.00 p.m.** on week days and between **11.30 a.m.** and **1.00 p.m.** on Saturdays.

Application forms may also be obtained by post by sending a self addressed envelope (25 cm x 12 cm) stamped **Re. 0.45 (Fourty five paise)** only and the necessary **Postal Order.**

Persons already in employment should apply through proper channel.

Applications completed in all respects should be submitted to the office of the undersigned by the **30th January, 1982** in an envelope superscribed with the name of the post applied for.

Candidates called for interview will have to appear at their own cost.

REGISTRAR

HINDI SNATAKOTTAR COMPLEX

POST GRADUATE COMPLEX

Dakshina Bharat Hindi Prachar Sabha
Hyderabad

Adv. No : 12/PGC/81-82.

Applications are invited on the prescribed form for the following post on or before **January 31** on the following Address: Registrar, Post Graduate Complex, Dakshina Bharat Hindi Prachar Sabha, Khairatabad, Hyderabad-500 004.

Lecturer in Hindi : One Post for Madras Post Graduate Vibhag, Madras.

Scale of Pay : 700-1600 + Allowances according to Dakshina Bharat Hindi Prachar Sabha Rules.

Qualification : *A First or a High* Second Class Master's Degree and Ph.D. from an Indian University in Hindi. Knowledge of Hindi-Linguistics will be preferable.

V. Anjaneya Sarma
REGISTRAR

ANNAMALAI UNIVERSITY

Applications are invited for filling up the following posts, in the prescribed form obtainable on payment of **Rs 5/-** to the Registrar, Annamalai University, Annamalainagar 608 002, by Cash Money Order/Postal Order (not refundable). Completed application forms (*with five additional copies*) should reach the Registrar on or before **23-1-1982**. The envelope containing the application should be superscribed as "Application for the post of....."

Sl. No.	Name of post	Number of post
1	Director of Correspondence Courses and Continuing *Education.*	*One*
2	Joint Director of Correspondence Courses and Continuing Education.	One

Scale of Pay

1. Director : Rs 1500-60-1800-100-2000-125 2-2500 with usual allowances.
2. Joint Director : Rs 1200-50-1300-60-1900 with usual *allowances.*

Qualifications

Director & Joint Director

1. Master Degree with First or High Second Class.
2. Teaching and Administrative Experience at least for 10 years including *experience in planning and execution* in Universities or institutions of Higher learning.
3. Knowledge of printing is essential. Preferable : Publications.

E. Thangavelu
REGISTRAR I/C

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No 15 81-82

Applications, on the prescribed form, are invited for the following posts.

1. Principal, Z.H. College of *Engineering & Technology*. *Scale* Rs 1500-60-1800-100-2000-125/9-2500 plus allowances.

Qualifications

Candidates should have high academic distinction in any branch of Engineering in addition to experience as the Head of a Department in an Engineering College of repute for atleast five years. A practising Engineer with sound academic background and long professional and administrative experience who has made a notable contribution to his profession will also be considered eligible for the post.

Age : The minimum age should ordinarily be 50 years

2. University Registrar. Scale Rs 1500-60-1800-100-2000 plus allowances

Qualifications

Candidates must have good academic background and ordinarily ten years' experience of administration, preferably in the field of University Administration.

3. Controller of Examinations. Scale Rs 1500 60-1800-100 2000 plus allowances.

Qualifications : Essential

A second class Master's Degree and experience of conducting University examinations and other allied work at the executive level for atleast 10 years and having record justifying of entrusting of confidential work.

Desirable

Experience of University administration and familiarity with the working of University Bodies and Institutions.

4. Lady Superintendent (Resident) Ahmadi School for the Blind. Scale Rs 650-30-740-35 810 EB-35 880-40-1000-EB-40-1200 plus allowances and free accommodation in Girls' Hostel.

Qualifications

Master's Degree with Degree Diploma *in Education. Experience of teaching*/administration in a school for the Blind. Sound practical knowledge of tailoring Embroidary and Cooking: Knowledge of Braille: some experience of looking after the Blind Girls.

5. Senior Technical Assistant (Temporary). Department of Geology. Scale Rs 550-25-750-EB-30 900 plus allowances.

Qualifications : Essential

B.Sc. with training experience in Laboratory Techniques in Geology.

Desirable

Experience of handling rapid chemical analysis instruments for the deter*mination of major and trace elements.* Preference may be given to a candidate having the requisite specialisation of Analytical Chemistry at the M.Sc level.

6. Senior Technical Assistants (two Plan posts). Electrical Engineering Deptt. Scale Rs 550-25-750-EB-30-900 plus allowances.

Qualifications

Ordinarily Bachelor's Degree in Electrical and/or Electronics Engineering *with adequate experience in repair and* maintenance of Laboratory equipments used in Electrical Engineering Department of a University.

OR

Diploma in Electrical and/or Electronics Engineering with 5 years' expe*rience in repair and maintenance of* Laboratory equipments in Electrical Engineering Department of a University.

Note : One post is for High Current area and the other is for Low Current area.

7. Senior Technical Assistent, Deptt. of Forensic Medicine. Scale Rs 550-25-750 EB-30 900 plus allowances.

Qualifications : Essential

B.Sc. with training experience in Laboratory techniques.

Desirable

Knowledge of Museum and Lab. Techniques

8. Senior Technical Assistant, Deptt. of Ilmul Advia. Scale Rs 550-25 750 EB-30-900 plus allowances.

Qualifications : Essential

B.Sc. with training experience in Laboratory techniques *of the subject.*

Desirable

Knowledge of Arabic and Persian.

9. Senior Technical Assistant in Nephrology, Department of Medicine. Scale Rs 550-25-750-EB 30-900 plus allowances.

Qualifications

1. B.Sc.
2. *Experience of working in Nephro*logy unit for at least three years.

10. Technical Assistant (Stores), Mech. Engg Department. Scale Rs 425 15 500 EB-15 560-20-700 puls allowances

Qualifications : Essential

B A B.Sc B.Com /Dip. (Engg.) Five years' experience of purchasing and accounting of engineering Stores including office work in a Govt. Semi-Govt. or Commercial Organisation.

Desirable

Knowledge of import formalities and clearance procedures from port.

Note : Experience relaxable in case a candidate is otherwise found suitable

***11. Technical Assistant (Turner)*, Elect. Engg. Department. Scale Rs. 425-15 500-EB-15 560 20 700 plus allowances.**

Qualifications

Trade Certificate in Turner's Trade and five years' experience in appropriate trade.

Note : Candidates *will* be required to undergo a practical test before *interview.*

12. Technical Assistant (Turbine), Deptt. of Mech Engineering. Scale Rs 425-15-500-EB-15 560 20 700 plus allowances

Qualifications : Essential

Ordinarily Post-Matric Diploma in appropriate branch of Engineering with 2 years' appropriate experience.

OR

Trade certificate in appropriate trade plus 7 years appropriate experience.

Desirable

Experience in a Heat Power Laboratory of an Engineering College.

Note : The qualifications may be relaxed in case of candidates having long experience in maintenance and operation of steam equipments

13. Technical Assistant (One post), Deptt of Forensic Medicine. Scale Rs 425-15-500-EB-15-560-20-700 plus allowances.

Qualifications : Essential

Graduate in Science.

Desirable

Knowledge of Museum and Laboratory techniques.

14. Senior Laboratory Assistant (temporary but likely to become permanent). Deptt. of Medicine. Scale Rs 380-12-500 EB-15 560 plus allowances

Qualifications : Essential

Higher secondary with science subjects Previous experience of working in Pathology Biochemistry Laboratory of a Medical College for at least one year.

Desirable

Diploma in Medical Laboratory Technology (Pathology) will be preferred

15. Junior Laboratory Assistant (Plan post) Deptt. of Pathology. Scale Rs 260-8-300 EB-8-340-10-308-EB-10-430 plus allowances.

Qualifications

High School or equivalent with science subjects and atleast 2 years experience of working in the Cyto-Pathology Laboratory of a teaching Hospital

16 Junior Laboratory Assistant. Physics Deptt. Scale Rs 260-8-300-EB-8-340-10.380-EB-10-430 plus allowances.

Qualifications : Essential

Matric or equivalent with Science subjects.

Desirable

Experience of working in a teaching or Research Lab. of Physics

17 Blood Transfusion Officer (temporary). JN Medical College Hospital Scale Rs 550-25-750-EB-30-900 plus allowances

Qualifications

M.B B.S , One year's House Job in a Clinical subject Experience of working in the Blood Bank of a teaching Hospital

18. Statistician JN Medical College Hospital Scale Rs 700-40 900-EB-40-1100 50-1300 plus allowances.

Qualifications : Essential

At least Second Class Post-Graduate degree in Statistics Experience in Medical Statistics.

Desirable

Degree in Sociology Social Sciences.

19. Dietician: JN Medical College Hospital. Scale Rs 550-25-750-EB-30-900 plus allowances.

Qualifications : Essential

B.Sc. with Diploma in Dietetics or Graduate in Home Science, with Nutrition as a special subject.

Desirable

Practical experience as Dietician in a Hospital for three years.

20. Radiotherapist, JN Medical College Hospital. Scale Rs 455-15-560-EB-20-700 plus allowances.

Qualifications

B.Sc. or equivalent. Should have passed X-ray Technician Training in Radiography Experience in Radio-Therapy work as a Technician for atleast 5 years in a teaching Institution.

21. Physiotherapist, J N. Medical College Hospital. Scale Rs. 455-15-560-EB-20 700 plus allowances

Qualifications

High School or equivalent. Diploma or equivalent in Physiotherapy from a recognised Medical Institution. Three years experience in the subject. One year experience in the field of Rehabilitation.

22. Store Supervisor, J N. Medical College Hospital

Scale Rs. 425-15-500-EB-15 560-20-700 plus allowances.

Qualifications

1. Graduate.
2. Should possess considerable practical experience in managing Drugs and Non-Drugs stores. in a teaching Hospital. Thorough working knowledge of purchase procedure, book-keeping and storage of drugs. non-drugs and all types of Medical equipments. relating to Hospital.

   (Qualifications may be relaxed in the case of experienced candidates).

Anaesthetist Technician. J N. Medical College Hospital.

Scale Rs. 425-15-500-EB-15 560-20 700 plus allowances

Qualifications: Essential

Matriculation or equivalent. Certificate of Nursing. 3 years practical experience as Anaesthetist Assistant in a recognised Medical College Hospital

Desirable

Working knowledge of Anaesthesia instruments and its care.

24. Ward Sister/Ward Master, J.N. Medical College Hospital

Scale Rs. 455-15-560-EB-20-700 plus allowances.

Qualifications

Matriculation or equivalent diploma in General Nursing and Mid-wifery. Registration certificate of any state Nursing Council. Experience as a Staff Nurse for atleast 5 years. Preference will be given to those who have done Ward-Sister's course.

25 Motor Mechanic. J.N. Medical College Hospital.

Scale Rs. 425-15-560-EB-20-640 plus allowances.

Qualifications : Essential

1. I.T.I. certificate in Motor Mechanics trade with 7 years experience in a workshop of repute.

   OR

2. High School with 10 years experience in a Workshop of repute

Desirable

Licence of heavy vehicle driving

Note: Experience relaxable in cases of candidates otherwise found suitable.

Higher initial start may be given to candidates possessing exceptional qualifications and experience Candidates interviewed may be paid contribution towards their T.A. equal to one Single Second Class Railway fare only.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **15 2.82.** Incomplete applications and those recieved late may not be considered.

Mahmood Ali
REGISTRAR

SARDAR PATEL UNIVERSITY

Post Box No. 10
VALLABH VIDYANAGAR - 388 120
GUJARAT, INDIA

Invites outstanding original research works of merit, carried out during 1976 to 1981 in "Theoretical Physics" from researchers of Universities or Institute deemed as universities or Institutes of National Level for the award of a cash prize of Rs. 4,000/- and a Gold Medal worth about Rs. 1000/- under "Hari Ohm Ashram Prerit Shri Harivallabhdas Chunilal Shah Research Endowment" which should reach the University latest by 5-2-1982.

A specimen of application form and the terms and conditions can be had from the University by sending a self-addressed envelope affixed with stamps worth 50 ps. or in person.

REGISTRAR

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V WORLD BOOK FAIR SPECIAL

Publishing and the Government 76
Scholarly Publishing in India 81
Raising Standards in College Education 84

Convocation

Visva-Bharati Growth Directions 92

Campus News

President: Gear education to present needs 99
Panel on medical education set up 99
Workshop on precambrian rocks 100

Agriculture

Pantnagar evolves high-yield pulses 102
Workshop on agronomic fertilizer experiment 102

Science & Technology

Research in new areas of science 104
Integrated energy policy suggested 104

News from Abroad

Career guidance abroad 105
THES—Third World Fellowship-1982 106
Research in Progress 120
Theses of the Month 123
Participating Universities in the V World Book Fair 138
Index to Advertisers 139
Classified Advertisements 140

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Editor: M.S. Ramamurthy

A Two Minute Reflection

Prof. Ishwarbhai J. Patel was in town today. He has been a Vice-Chancellor for over 15 years and has steered three different universities in Gujarat. He was the President of the AIU in 1974-75. The Editor met him and in the course of a general talk he gave information to ponder over by those who are at the helm of affairs in universities and colleges. This is what he said:

"One of the serious concerns of the Government of India is exploration of alternative sources of energy. New sources of energy had to be tapped in view of the heavy drain on foreign exchange witnessed in importing Petroleum. One area in which the university system can help the Government without needing much research and exprimentation and starting straightaway is substituting Gobar Gas (GG) for petroleum gas which is now in use in well over 1,000 Engineering, Medical and Science colleges and Science departments in universities for Laboratory burners. I have been recently working with Shri Arvind Pandya of the Khadi and Village Industries Commission who has carried out extensive research on gobar gas. We used the Lab. burner successfully on gobar gas and the same was witnessed by a Principal of a science college with great satisfaction,

"The investment needed for a fairly big sized plant will be of the order of about Rs. 50,000. This is approximately the amount that a single leading science college in Gujarat spends on Petroleum for generating gas to be fed to the science laboratory. While this amount is the annual recurring cost, a GG plant does not need any such heavy expenditure in its working or in its maintenance.

"In the GG plant, apart from gobar, paper waste, water hyacinth (which is an unwanted weed) and even common grass can be used. Experiments have proved that the latter material when used after the Gobar Gas plant has started working is equally effective. Something like 80% of the latter can be mixed with gobar.

"The flame issuing out of the gobar gas burner is as blue and odourless as in petroleum gas. Not only that. Even the slurry is useful manure. Experiments have proved that for agricultural operations this slurry is about 25% more effective than other inorganic manure. Costwise also there is considerable saving as an input in agriculture. Contrary to popular belief slurry is absolutely odourless.

"If taken up on a large scale, prices can be further reduced by mass producing the gas holder for the plant.

"In my view, the University Grants Commission must take up this matter seriously. It should assist universities and colleges financially to set up these gobar gas plants. In doing this the UGC and the university system would be helping a national cause and also achieve economy in expenditure. It is time that all those concerned take up this matter more purposefully.

"Once the investment in the plant is done, there is no recurring expenditure as in the case of petrol. The sale of slurry can easily cover the cost of dung and of the person in charge of the GG plant. You don't require a technically trained person. A mali with practice can easily look after it. The added advantage is that you save petrol and for one college if you on an average save petrol worth Rs. 30,000 per annum, the saving on an all India basis will be quite high. This is saving money as well as foreign exchange".

For those interested, Prof. I.J. Patel can supply further details including designs.

New Delhi
28-1-1982

—Editor

AIU Library

Publishing and the Government

Amrik Singh*

The plain fact is that the Government (this includes the State Governments as well) have done only that much for publishing which they were obliged to do. This refers mainly to two things. One is in relation to certain decisions that have to be taken. For instance, if there is shortage of paper it affects several sectors of life, including publishing. The Government then is obliged to intervene. Maybe some more paper is imported or new manufacturing capacity is created. Here is a matter in respect of which the Government cannot escape its obligation.

The same can be said with regard to import policy, excise duty, manufacture or import of printing machinery and a whole host of other items. In respect of all these matters, situations develop which then have to be taken care of through State intervention. Most of the examples given are in respect of what the Central Government does; some of them also concern the States however. Whether it is the Centre or the States, the governments on the whole react though sometimes they also have to act in anticipation of developments which are likely to take place.

This interventionist role of the State is very much a part of the system that has developed in our country and elsewhere in recent times. Every state is more and more involved in more and more activities. A century or so ago, an individual could be completely unaware of what the State was doing or not doing. Today governmental business has expanded and proliferated to such an extent that there is hardly any sector of activity which does not somehow or other receive the imprint of the State. Publishing too gets drawn into this network and that is how over the years the State has come to play a more and more active role.

In regard to what the State has done or has failed to do, there can be questions raised. Some of the decisions have not been particularly enlightened and there has been resistance to them. In most of those cases the State has modified its decision to suit the emerging situations. This is mainly in regard to things that have been done. But the list of things that have not been done is perhaps larger than the things that have been done. This calls for some soul searching. It also calls for a projection into the future. Above all, it is important to have some kind of a vision of what ought to be done so that what is demanded of the State is neither unrealistic nor platitudinous in character.

Viewed in this context, the fact of the matter is that in the absence of a national policy, the State has not done enough for the dissemination of knowledge for which publishing is an important instrument. On the contrary, at least one decision taken by most of the State Governments has emasculated publishing to a considerable extent. Textbooks at the school level were nationalised in the early fifties. The decision was a right one in so far as the country was poised for a surge of educational expansion. That expansion did take place. The cost of books being what it was before the nationalisation of textbooks, there certainly would have been difficulties in the way of expansion. In that sense the decision was right.

But was it not equally incumbent upon the State to make up for this loss of capital ? The sale of school textbooks normally produced a certain surplus which was utilised by most of the publishers to undertake general publishing. When that source of income dried up, publishing of general books declined in no uncertain terms. Soon thereafter however came an infusion of American money into publishing. With an inflow of approximately Rs 200 crores in about a decade, publishing in English came of age. But publishing in our own languages still continues to languish. In fact there is a marked disparity between the level of publishing in English in India and the level of publishing in our own languages. There are a couple of other factors responsible for this disparity but lack of capital is certainly one of them.

Another illustration would be equally pertinent here. When the Sixth Plan was first drawn up, there was a reduction in the outlay on higher education. In view of the inverted priorities that had crept into our educational system during the preceding couple of decades, there was a good deal to be said for the revised priorities. If a country like India neglects elementary and adult education it cannot but hurt herself. To that extent the decision was right. But when this decision was being taken, nobody stopped to enquire what effect such a decision would have on the state of publishing in the country. Publishing in English in India was more or less at the take off stage when this decision was taken. As soon as the impact of this decision was felt, almost everything stopped in mid track. Because of the gains that they had made in recent years, most publishers could manage to survive, but that is about all. Some steps have been taken recently to undo the damage done but it will take sometime before the damage is repaired.

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*Secretary, AIU, New Delhi.

As these two examples would show, decisions are taken by the right hand and the left hand does not know what would happen in consequence. As far as one can judge, this happens for two reasons. One, no Government has adequate machinery to look ahead into the future in a field so sensitive as the intellectual life of the country. In the absence of such a machinery, decisions about publishing are taken like any other bureaucratic decision. It is only after decisions have been taken and their consequences begin to manifest themselves that there is some feeling of disquiet. That feeling however does not always lead to positive action.

For instance, the decision to increase grants to university and college libraries has no doubt been taken but somewhat unenthusiastically. In consequence, its impact is yet to become visible. Furthermore, there is no certainty that this is anything other than a response to a given situation. To be specific, nobody can say with a degree of certainty what the policy in respect of book purchases would be in the Seventh or the Eighth Plan. After all, the publishing industry cannot switch on and switch off just like that. There has to be some method and planning about it. For the next couple of years the publishing industry can look forward to a period of growth. But what after that ? Nobody knows and nobody can say anything.

II

This brings us to the second reason for this state of affairs. When erratic decisions like this are taken in respect of other sectors, the concerned industry protests and, more often than not, can get its point of view accepted. In the case of publishing they lack even the energy to protest. To be more precise, they protest but nobody heeds their protest. This is partly owing to the size of the industry but largely owing to lack of leadership. It would be difficult to imagine a more pathetic set of people than those who are involved in publishing. Not all of them are men of education. As to ideas and vision, the less said the better. No wonder that they command little respect. As if that was not enough, the support extended to them by the academic community is hardly worth mentioning. In a sense they should be deeply concerned with what happens to publishing but they are not. Either they are oriented to what is published abroad or they are just plain indifferent.

Something has now been done in regard to publishing in English and the university and college sector. But nothing is being done for our own languages. The situation there continues to be dismal. Except for a couple of languages where the internal market is good, the rest of the languages are starved of funds, organisational talent, marketing facilities, indeed everything that goes to foster publishing. As stated above, it was perfectly in order and indeed right to have nationalised school level textbooks. But does it not stand to reason that an alternative source of funding should have been provided for our languages ? Anyone who talks of denationalisation is dubbed as a reactionary or as a paid agent of the publishers.

But surely in an enlightened community which we claim to be, it is in everybody's interest that publishing should be vital and wholesome. This should be so not only in respect of English but also in respect of all our languages. The principal incidence of nationalisation of school textbooks is felt by publishers in our own languages. Those who publish books in English have had the benefit of American help and also the ever expanding market of university and college level textbooks. But those who operate at the school level, and they are the ones who constitute the majority in respect of publishing in our languages, continue to starve and flounder.

Several persons have suggested that without denationalising school level textbooks it is possible to develop a joint sector. A negative feature of the present system is that both the writing and production of school books is on the whole poor. A certain amount of competition therefore would be useful. But that apart, the fact still remains that in a situation like ours, unless some funding is made available to publishers publishing will just not improve. This funding obviously has to be on a loan basis. Making outright grants is the surest way of killing initiative. That should not happen. But the publishing trade should be enabled to draw upon some sources of funding.

III

Banks do not grant them loans. If a publisher pledges paper to a bank he can raise funds. That is for the simple reason that that paper can be sold in the market. But once that paper has been printed upon and converted into a book, the demand for the book would depend upon a number of factors, including the quality of writing and production. The banks have no way of distinguishing one book from another. They therefore follow the simple policy of refusing any advance against printed matter. Plain paper however is a different proposition and they are always willing to consider it. An educated person is likely to regard this as a very odd kind of situation. But perhaps it cannot be helped. Imagine the amount of corruption that would take place when a bank official accepts one book as being suitable for loan and rejects another. The banks therefore prefer to play safe and refuse to have anything to do with the printed matter.

How is the need for finance then to be met ? It can be met either through the Government or through agencies and institutions supported and financed by the Government. In these three decades of independent India hardly anything has been done in this regard. It only goes to show that nobody has thought this problem to be important enough. This is only another way of saying that publishing is something which has never received the kind of recognition or importance that it ought to have received. Those who are concerned with policy making react to situations. They seldom anticipate them or act in advance. Yet here is a very real problem and some solution has to be found to it.

To some extent a solution to this problem can be found without having to raise additional funds on a substantial scale. This can be done by changing the existing procedures. There is hardly any State in the country where vast numbers of unsold books are not to be found. Whole godowns are full of books which find no customers. When State subsidy is available, marketing is always a problem, be it books or any other commodity. When the private sector takes over, it cannot survive unless it liquidates its stocks. The moral is therefore plain. The State should not publish. However it should make funds available for publication. All publishing should be done by the private sector unless it is unavoidable and the private sector will see to it that stocks do not pile up and there is free flow of cash. This consideration in turn will influence their whole planning and programme of publishing.

There can be some negative features to such an arrangement but then it is possible to anticipate these problems and to take care of them. In other words, if the State keeps out of publishing and simply makes funds available and that too on credit basis, approximately one-third to one-half of the capital required to foster publishing could be found from within the existing resources. Something more too would have to be found however and ought to be found. Publishing is not something which can be allowed to languish. It is an index of the state of development of a country. We are doing a good deal for scientific research. That is excellent. But let 5% of that effort be diverted to publishing as well. The returns would be no less impressive.

IV

Availability of easy credit would bring about a marked change in this situation. Most publishers who today are unable to find the requisite capital. would be able to tap these new channels of funding In every industry capital is an important input. While publishing industry suffers from a variety of ills, at least one of the more prominent ones is the lack of capital. Once the State steps in whatever manner it chooses to step in, things would improve without question.

Then would arise the next question, that of marketing. How to sell the books that are published ? It is here that the private sector scores over the public sector. Books are like any other commodity of daily use. The more accessible they are to customers, the more saleable they become. Marketing therefore is a very important link in the chain. Perhaps the single biggest weakness of Indian publishing is its poor distribution system. To some extent it is linked up with the relative lack of capital. To some extent there are other infirmities too.

The high cost of paper and therefore the higher cost of production is one of those infirmities. Over the years the cost of paper has been rising, so much so that the Government has had to intervene and create a category of subsidized paper for educational purposes. This arrangement has been at work for a number of years. All such arrangements however usually breed corruption and inefficiency. The system therefore has to be abandoned within the next few years and the only way it can be done constructively is to increase the quantity of production and simultaneously to keep its cost under control. The role of the State in doing all this is not only unmistakeable; it is equally inescapable.

But a more disabling factor is the fact that we are now living in an inflationary situation. Along with everything else the cost of books has been rising year after year. This being so, at least the salaried class would (they constitute a substantial chunk of the reading public) find it more and more difficult to buy books. What is to be done in this situation ? Not many people have given much thought to it. It is important however to find a solution to this problem, otherwise books would get priced out of the range of the average middle class and that would be a disaster.

V

The most appropriate solution to this problem is to develop a countrywide library system. During the last three decades or so education has expanded tremendously. More children at school and college level means more production and more sale of books. This is gratifying. But no less important is the need of those who pass out of the educational system. The educational system has, all said and done, some kind of a library infrastructure to support it. It may not be all that satisfactory but by and large the system functions. Where it does not function is in respect of the general public.

Except for the four South Indian States, hardly any other State has adopted the library legislation or created a network of libraries. The best organised in this respect is Kerala. It has the highest rate of literacy in the country. It also has an actively functioning library movement. It should not come as a surprise to most people therefore that of all the Indian languages today Malayalam is perhaps the most vital and the most creative. In every other State things are definitely unsatisfactory. This is particularly true of Hindi-speaking States where the rate of literacy also is low. While something is being done to improve the rate of literacy, hardly anything is being done to prevent people from relapsing into illiteracy.

Once again here is a role for the State to perform. The needs of the neo-literates are of overriding importance. We have millions upon millions of youngmen and women who have spent a few years largely at the primary school and acquired some rudiments of literacy. Were books of the right kind available for their use, they would be able to retain their habit of reading and writing. Since this does not happen in most places they very soon forget what they have learnt and in no time they become illiterate.

This happens not only in the countryside. It also happens in towns and cities. Since 20% of the population in the county today belongs to the urban areas and the incidence of literacy is greater in the urban areas than in the rural areas, what happens in towns and villages is also of considerable importance. Public libraries either do not exist or do not function.

What is required therefore is an actively functioning library system. These libraries have to be at different levels of specialisation. Books for neo-literates cannot be coupled with books which would appeal to the sophisticated reader. Even if they are to be found in the same library, it would be necessary to cater to different tastes of readers. This is not an occasion to go into details of organisation and administration. All that is necessary to underline is the crucial importance of the library system and the support that it would, in turn, provide to the publishing industry.

It is not necessary to repeat what has been said in regard to grants to university libraries and colleges. These libraries have received grants for several years at a certain level of funding. Any wide fluctuations as were witnessed during the last few years would dislocate the industry. This is not only exasperating, it is also wasteful. In our future planning we should ensure that this kind of a thing does not happen and that there is consistency of approach as well as of implementation.

The role of the Ssate in respect of publishing is so crucial in our situation that unless the State chooses to play this role in a competent and progressive way there would be immense damage done to the intellectual life of the country. One can discern some dim understanding of what the State ought to do. What is required however is better understanding as well as better planning. ☐

[*Courtesy* : Indian Book Chronicle]

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Scholarly Publishing in India

—A Professional View

Samuel Israel

I recently read the text of a lecture entitled 'The University of Every Man', delivered in New York in 1944 by a person named Joseph E. Brandt. Mr. Brandt, a note in the volume in which the lecture has been printed (*Bowker Lectures on Book Publishing*, R.R. Bowker Company, New York, 1957, pp. 161-76.) informs us, was, at the time the lecture was delivered, director of the University of Chicago Press, was later president of Henry Holt & Company (a leading US commercial publishing house), and had earlier been responsible for the development of the University of Oklahoma Press. He had also, for some time, been director of the Princeton University Press. Among the many very significant things Mr. Brandt said—as significant in most cases for India as they undoubtedly must have been for the USA, I would like to use for the theme for this article the following passage:

> Now, the "list" is the heart of publishing enterprise. It is the heart which pumps the rich blood of vitality into the world of ideas and which, in general publishing, determines whether the publisher or his banker pays the bills. To a great extent, the slowness with which university presses developed as an acknowledged force in the book publishing world can be attributed to neglect of list making, due in great part either to the dual nature of press organization, in which the director is not given freedom or in which a well-meaning faculty committee, expert on everything but the art of publishing, determined the kind of publishing. (Op. cit., pp. 169-70).

Is not this at the core of the failure of Indian university publishing to make its presence felt to any substantial extent even within the Indian academic community? The combination essential for success—scholarship allied to and closely co-operating with professional publishing knowledge and competence—has been consistently absent. Neglect of list building is also conspicuous in Indian university publishing. Much of it, where it exists, has been sporadic and scattered, isolated volumes some undoubtedly of great merit) on random subjects, with no attempt to build a list with a distinct character, one to which people requiring certain types of books would automatically turn.

Importance of the 'Lists'

Significantly, it is the publications of specialized institutes, rather than those of the multi-disciplinary universities that have tended to constitute 'lists' in the sense in which we are using this term. From my experience (gained in the first half of my publishing life), I can mention the examples of publications sponsored by the Indian School of International Studies (now School of International Studies, Jawaharlal Nehru University, Delhi), the Indian Statistical Institute (Statistical Publishing Society), Calcutta, the Gokhale Institute of Politics & Economics, Pune, the Department of History, Aligarh Muslim University, and the National Council of Applied Economic Research and the Institute of Economic Growth, Delhi. All the publications of these centres of specialized study were, at the time of which I am writing, published under the imprint of a single publisher, and the individual lists could therefore be promoted *as lists* identifiable with the respective learned institutions that sponsored them, in spite of the fact that they were issued under the imprint of a single publisher.

Unfortunately, these arrangements did not last, for reasons that are beyond the scope of this article, but this does not invalidate the point made concerning list-building. It is not, of course, a case of professional publishing skills being applied to the choice of materials for publication, but just a matter of the academic discipline itself giving the list shape and direction.

In the case of the examples cited, the collaboration between learned institutions and the publisher was, in some cases, confined almost entirely to promotion, distribution and sales; in others, it included investment, design and production, from copy-editing and marking-up through to binding and jacketing. The *major* editorial funtions—the evaluation of publishing proposals, the commissioning of books, the supervision of collective long-term projects, and editing for substance and presentation, where it was at all done—all these were, in all cases, under the sole control of the institutions.

In the case of publishing for a whole multi-faculty university, ranging through the humanities, the social sciences, the biological and physical sciences, medicine and engineering, the extremely limited funds usually made available for publishing, the lack of professional publishing advice and services, and, I imagine, the need to balance the share of the various faculties and departments in the publishing cake, can well result in haphazard, ad-hoc publishing. The tendency is likely to be to support publication of Ph.D. theses which are considered to be of outstanding quality.

Publication of Theses

The fact that theses are published is often criticized but, as Brandt pointed out in his lecture, it is not true that *all* theses are *not* suitable for publication in book form and, by their very nature, incapable of providing material for successful and worthwhile books.

> Many dissertations (Brandt said) were real books, however, or could be made so. Many doctoral candidates were converted into authors

by the sympathetic understanding of (university) press editors. (Op. cit., p. 170).

But where are the editors in our university presses? In fact, how much of conversion of doctoral candidates into authors has been achieved or even attempted by editors even in commercial publishing houses in India?

The publishing of theses, more or less in the form in which they are presented to the examiners, has long been and continues to be an important sector of Indian publishing in English, and there is no doubt that a number of theses have suffered, in terms of readership, sales and effectiveness, as a result of the lack of professional advice and handling, whether in the hands of university presses or commercial publishers. There are, of course, the aspects of promotion and sales also, but I will not, in this short article, attempt to deal with these even briefly. The point I am attempting to make is that, if university publishing is to really establish itself and make an impact, academic control of list making *must* be combined with professional publishing management and skills and these must make their influence felt very substantially in the list-making process, as much as in the others. That is, while the academics might have the last word, they must utter it only after enjoying the benefit of really expert professional publishing advice.

Academics as Publishers

Academics-turned-publishing-managers are not unknown. Brandt, whom I have quoted and referred to in this article, is one example. He is an historical scholar and author of a book entitled, *Toward a New Spain.* Another example that came to my attention recently, when he visited India last November, is George Richardson, Secretary to the Delegates and Chief Executive of the Oxford University Press. Before taking up his present responsibilities, Richardson was a fellow of St. John's College and reader in economics at the University of Oxford. He is also author of an Oxford book with the intriguing title of *Information and Investment.* He had gained experience of publishing and its problem, when still a don, as one of the delegates who collectively constitute the supreme body of the Press. All the delegates are academics and meet under the chairmanship of the vice-chancellor. But the opposite is also possible.

It is not unusual for professionals in publishing to have serious scholarly or academic interests or at least a deep appreciation of scholarship and its vital social functions. Some among such persons would certainly be willing to serve university publishing if they are given the status and emoluments appropriate to their professional standing and are not treated as a category inferior to the teaching staff. I know of one case at least of an academic who took up an editorial position in a university only to find, as he grew older and wiser, that avenues of promotion that would have been open to him as a teacher were blocked to him as an editor.

Many other points regarding university presses and of relevance to the subject of this article were discussed by Brandt in his lecture, such as whether university presses are at all required, their special role, their increasing importance, their essential characteristics (how they differ from general publishing houses), their relationship with the rest of the book world, their different forms of organization and management, inter-press cooperation in promotion, distribution and sales, and an outline of their history in the USA, which, I think, has many useful lessons for us. He also has some very wise things to say about books in relation to human freedom and progress. To deal with all these would require a resume of the whole lecture and more space than this article has been allotted. Those interested will therefore have to seek out the lecture itself, which makes its points much more clearly and eloquently than I ever could at second hand.

Academic Conceit

Many of us in commercial publishing have tended to dismiss university publishing in India as an expensive way of pondering to academic conceit and, therefore, of little practical importance. I am now, I think, a little wiser. I now believe that even the interests of commercial publishing and the book trade require a healthy growth of scholarly publishing, not to speak of academic and social benefits. Unfortunately, by and large, the approach has been equally casual from the end of the universities. It is the universities that must take the major blame for the widespread view that all university publishing as we know it today, serves, and what is worse, can serve very little purpose beyond providing sops to scholars—hence the parsimony when determining publishing budgets and the unwillingness to have university publishing handled professionally, with the help of persons of proven publishing ability at salaries and with a status appropriate to their qualifications and experience. Hence the willingness to leave university publishing to overworked press managers driven to distraction by demands for examination papers, stationery, syllabuses, minutes of senate and syndicate meetings etc., or to an office superintendent, or, at best, to a deputy registrar with a thousand other things on his hands. A new approach to publishing in the universities has long been overdue.

I will end with a mild warning. Commercial publishers the world over are becoming more and more commercial. The scholarly book is finding it increasingly difficult to make its way into commercial lists. During the last two years particularly, there have been increasing signs of similar tendencies in India also. As far as I can see, this not because the market for scholarly books is shrinking either in India or anywhere else (leaving aside short-term fluctuations like those caused by lack of grants to libraries); it is because money is becoming increasingly expensive and those who invest it are anxious for quick and 'reasonable', if not the maximum possible, profits—which scholarly publishing can seldom provide. It is time our learned institutions began to prepare themselves to meet this developing situation in a businesslike, practical way. □

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BOMBAY CALCUTTA NEW DELHI MADRAS

Raising Standards in College Education

V. S. Mathur

Colleges occupy a pivotal position in the field of higher education in India. More than 85 % of students following higher education study in colleges and more than 85% of the teachers involved in higher education work in these places. The number of colleges in India went up from a mere 250 in 1947 to about 4500 in 1980. The college enrolment has also shown a tremendous increase during this period. These figures are likely to go up termendously during the next ten years as demand for higher education increases as a result of increase in the number of school leavers.

It is, therefore, very relevant that unless academic standards in our colleges improve, general standards of higher education in the country are bound to remain rather low. It is, therefore, imperative that all the concerned agencies like the UGC, the Central Government and the State Governments give all support to college education and provide them all facilities so that the present malaise could be broken through. The increase in the number of colleges and students should not mean an academic climb down.

It is a poignant fact that our degree colleges (as well as our universities) cater more for examinations than for education. A time has now come when we should make all out efforts for the creation of a proper climate for the nourishment of quality in education. The present mediocrity specially at the higher levels has to be quickly broken through so that we may be able to keep pace with the more advanced nations of the world.

Admissions

The first question that we have to decide is whether college education is meant for all or its main purpose is to throw up the intellectual leaderships for the country. A poor country like India must decide at once whether higher education is an investment. If it is so, we can ill-afford the luxury of having it open for any one and every one and have a virtual food of graduates every year.

The present popular belief, however, seems that it should be available for every body and if it continues like that, then we must learn to live with low and deteriorating standards and we need not 'lament over the lack of grace in modern life'. And the phenomenon of education unemployment is likely to be perpetuated.

At least, I am very sure in my mind that no ambitious nation can afford to let standards in higher education be drowned in numbers and I also strongly feel that we will have to drastically restrict admissions to our colleges & universities. We have to think out a bold and imaginative policy in respect of admissions to colleges. We should only select those persons who are emotionally and intellectually prepared for higher education and who on coming out of these institutions will be in a position to make a definite contribution in national development.

One can think of several ways in which a better and more objective selection of students could be made. We could for instance admit only those candidates as have secured fairly high percentage of marks at their school examinations. As an alternative, we could give special weightage to marks achieved in important subjects like languages and mathematics/science etc. Besides, we could also take into consideration the student's cumulative records at school. Perhaps some colleges may like to have their own admission tests both written and oral. The colleges under the leadership of the respective universities will have to carry on investigations to locate method/methods of selection which are likely to be more fruitful.

This of course pre-supposes that firstly, alternative educational programmes will be available for those who fail to get admission to the colleges and secondly, it may also be worthwhile that the school system contains a number of terminal points from where students could be diverted to technical and professional courses. Delinking of University degrees from the employment pattern may also discourage people from crowding into colleges. The 10+2+3 pattern if properly implemented could certainly help ease the situation. And with this situation, substandard colleges may gradually close down.

Rapport with universities

Every college is affiliated to some university which is usually a centre of higher academic and educational work. It is, however, rather sad that there is no significant rapport between the affiliated colleges and the universities except that the examinations are conducted by the Universities. We have to find out ways and means of benefitting from the work being done there. This could be done in many ways. For instance, the colleges on their own as well as the universities could organise extension lectures by the university experts. Special university facilities available in the form of libraries and laboratories etc. should be thrown open to the colleges specially during holidays and vecations. It may be also worthwile for the universities to select one or two colleges for special academic attention every year.

Special treatment

The Sidhanta Committee (1965) suggested for the first time that certain good colleges be granted autonomous status to experiment with new techniques of teaching, courses of study, system of examination etc. This recommendation was taken up by the Kothari Commissson and has received general approval of the Central as well as the State Governments. The experiment is worth trying provided the selection of colleges is made very objectively and that special assistance is available to these colleges for the pursuit of excellence.

Lay colleges

However, most of the institutions will have to function under normal circumstances as lay institutions. I am more worried as to what can be done to improve teaching and learning standards in these institutions. We should all agree on the basic principle that the rigidity of the syllabus, the text-book and the examinations, has to be broken through and the students helped to acquire depth. Routine class room methods have to be replaced by something more refreshing, and more and more opportunities given to the lay student to get involved directly in the learning process. This, however, cannot be done through mere lectures and dictation of notes. These spoon-feeding methods develop a tendency among the students to rely more on guide books, bazar notes and select memorisation.

Even the lecture method could be improved and made more effective if the teacher prepares a synopsis of his lectures containing carefully selected bibliographies and make it available to the students for their personal guidance.

Students should be involved more and more in academic discussions, seminars, tutorials etc. It may be a better practice if at the end of each lecture period some time is left for discussion every day in every subject.

No doubt, we do have some tutorial system working in our colleges today which does recognise the need of deeper teacher-pupil relationship, but it leaves much to be desired. One better method of making tutorials more effective may be to insist upon written assignments as part of the tutorials which should be held atleast twice a week. Healthy social rapport between the two groups is also necessary and we need not be unnecessarily fastidious and touchy on this point.

The general practice of assigning one paper or even one subject to one lecturer is also not ideal. Syllabi could be broken up into suitable units and each unit dealt with by different experts.

Library improvement

The habit of self-study is a must for college students They must be encouraged to go to the library, select books and journals and read for themselves. Care should be taken to have the latest in the library shelves. As such more and more of journals and magazines have to be purchased for college libraries. Self-study can be of great help in developing the process of thinking and expressing provided it is done seriously.

It is a patent fact that most of our college libraries are not very rich but it is equally a patent fact also that even at places where good libraries do exist, they are not put to wide use either by the teachers or by the students. One difficulty that I always encountered in this connection was that libraries in colleges are usually open during college hours when most of the students are busy with their classes and as such the library and reading room facilities are not put to proper optimum use. Secondly, I found that neither the teachers nor the students are aware of the type of literature and publications available in the libraries. The result is that college libraries degenerate into places which people may visit for a few minutes for hurriedly going through the daily newspapers or some light journals etc. The only remedy lies in keeping the college libraries open for atleast 2-3 hours before the college begins and for 3-4 hours after the college closes.

Then there is the question of the teacher's personal libraries. The Income Tax Department allows rebate on literature purchased for professional growth and improvement. What can the management do about it? It should meet half of the actual cost upto a certain maximum or perhaps it may be a better idea to have special teachers' libraries or library cells in bigger public, university and college libraries.

The gifted

In every college and in every subject there are some promising and gifted students and it may be worthwhile to give them additional facilities and guidance in the libraries and the laboratories and during holidays and vacations. This could also be done on an inter-college basis in places where more than one colleges exist in one locality or in collaboration with the local universities.

Opportunities for creative education are equally important for the gifted. It is every body's desire with higher intelligence to create something or atleast to resist routine. Opportunities have to be given to the individuals to think for themselves and to express freely through the various media. Special programmes for the gifted could also be arranged specially in holidays and vacations. Visits to factories and other places could also be arranged.

Examinations

There is also much scope for reform in the examination system at the degree level. It may perhaps take some time to convince the universities to modify their systems, but certainly colleges on their own could introduce some reforms. One such reform could be to increase for the frequency of the house examinations and to make them as informal as possible, instead of the present system of full-dress house examinations. Experiments could also be conducted in the use of oral tests in the shape of group discussions as a part of house examinations. I feel that this innovation should be able to draw the students out much better than can be done during a written examination. The technique of short-answer questions as well as the implementation of honour system in house examination should also prove very useful. There is a great need to re-orient our examination system in a manner that it not only measures a candidate's achievement objectively but that it also eliminates all temptation to use unfair means.

National intergration

I have now come to believe that colleges and other places of higher learning can do a lot in spear-heading the much needed movement for national integration. I would suggest the introduction of an independent paper on 'Indian Culture' either as an additional paper or in place of 'General Education' which subject has been adopted by some Universities, besides some other items.

Teaching staff

A necessary component of good college education naturally is that we should have not only highly qualified experts but also experiment-minded teachers. Frequent orientation and in-service programmes for college teachers are a must and for such programmes the universities and the state departments of education should earmark special funds. It is also necessary that young college teachers have some orientation in the techniques of teaching as well as in the use of aids like the T. V., the radio, the tape recorder and the film. So far the teachers involved in higher education have been under the impression that pedagogy and aids are not for them, these are meant for only school masters. A dynamic college teacher desirous of doing his work more effectively, will not hesitate to equip himself properly and to take as much outside help from the various agencies in helping the college students' learning process.

Administration

My personal experience as head of Colleges of Education for a period of more than 25 years has convinced me of the necessity of doing some fresh thinking about the administration of colleges as part of the State Education Departments. While I am all one with the demand for decentralisation, I firmly believe that this demand becomes more important and practical in the case of colleges where the heads and the staff are people with much higher educational status. There is need to allow them all initiative even in routine administrative matters and not to regiment their functioning by departmental rules and regulations.

In the State Department of Education there has been hitherto no special wing for College Education. The D.P.I. has been looking after both the college and school wings. This situation is available in many states even now. However, in some states, college education has been put under independent Directors/Additional Directors/Joint Directors. In one of two states there is no separate Directorate of college education and principals of colleges deal directly with the Education Secretary. However, in some states IAS officers have been, strangely enough, put inchage of College Education.

College education is a subject which can best be left alone in the hands of college principals who are sufficiently senior educationists. However, it may be a worthwhile idea to have state commissions for higher education on the pattern of the U.G.C. It should be manned purely by persons concerned with university and college education besides having a couple of eminent educationists from the private cadre.

Whatever shape things may take, of one thing I am, however, certain that the principals have to be treated as higher educational officers and they have to be given complete autonomy to run their colleges according to their own ideas and those of the staff working in the various institutions. I would, therefore, plead for an early examination of the departmental rules and regulations, governing the working of the colleges. For instances there should be no curbs on the principals even in financial matters, specially in expenditure from the amalgamated fund. Similarly, there should be no restrictions on the purchase of library books and other literature. One could think of many more items where rules could be liberalised, and the principals given un-restricted authority to deal with the affairs of their institutions. The role of the headquarters and the Government in College affairs has to be drastically minimised.

However, I am not pleading to have dictatorship in our colleges and as such I would suggest that every college may have a college managing committee or a college council with whose involvement important policy decisions should be taken. Likewise, we could have small committees for important items like hostels, games, co-curricular activities etc. Students should be increasingly involved in the college affairs. Staff meetings that are usually routine and dull affairs could be enlivened by free discussion on academic and administrative matters I am only pleading for experimenting with imaginative and dynamic administration for which I find the college situation more amenable.

I do not envisage any special difficulty in the running of Govt. aided private institutions; rather private institutions should provide a better ground for free experimentation because they are comparatively not so much bound by departmental rules and regulations and the code. The only pre-requisite is that the donors and the members of the managing committees should not consider the institutions their private property. The principals and their staff should be left free and given all support—moral and financial. Good education is our common concern, but its implementation should better be left to educationists and teachers.

Epilogue

In the final analysis, hovever it is the individual institutions and the individual teachers on whose endeavours and on whose faith, things can improve. We cannot have a blanket programme of college improvement. Local initiative has to be very much there. We need institutions and teachers who are sentitive to the great need for improvement and who are very ready to put in their best for the continued improvement in our educational standards. Best planning is self-planning and best development is self-development, and of course best reform is self-reform. □

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Convocation

Visva-Bharati : Growth Directions

Tagore was a great synthesiser. Three different aspects of this concept of synthesis may be specially noted. When, at the turn of this century, he established his famous school at Santiniketan, one of the key ideas, which became a cornerstone of his new experiment, was the idea of accepting the tie between the child and nature, and the rich sense of wonder and the instinct for exploration that derive sustenance from it, as the basis of education. During the next two decades the horizons of Tagore's educational efforts expanded and when Visva-Bharti was inaugurated in 1921, the proclaimed objective was "to study the mind of Man in its realisation of different aspects of truth from diverse points of view" and, more specifically, "to seek to realise in a common fellowship of study the meeting of the East and the West." Soon after when the Institute for Rural Reconstruction was set up at Sriniketan, the principal idea was to promote rural development and thus to overcome the alienation between towns and villages. A moment's reflection will reveal that these three aspects of the idea of synthesis are, in fact, complementary; they mutually support one another and find their fulfilment in a larger philosophy of humanism, which Rabindranath called the Religion of man. It is equally worth remembering that Tagore himself was an extraordinarily dynamic person and that the unity of the different elements in his conception of synthesis was, and could only be, a moving and not a static unity.

All the components of Visva-Bharati are important in one way or another yet some are quite special to this university in the sense that they have no obvious counterpart in other universities. A few words about Palli Samgathana Vibhaga. I choose it for special reference because it represents something which is distinctive of our university, but which has nonetheless.

Recently we have been trying to reorganise Palli Samgathana Vibhaga. We aim at achieving within this institution a special blend of academic work, befitting a university, and constructive activities for rural development.

Tagore believed in science as a powerful aid to rural reconstruction. This includes both the physical and the life sciences, on the one hand, which are so essential for increased farm productivity, and the social sciences, on the other hand, which are expected to guide our way to a better co-operative organisation of rural communities at rising cultural levels. Palli Charcha Kendra, as a centre of social science research, would collect and systematise the kind of information which might help Palli Samgathana Vibhaga to understand better the obstacles to rural development and suggest ways to overcome them.

The Department of Social Work at Sriniketan has similarly a specific focus. We do not aim at developing this Department as a specialised centre for training in industrial and labour management. In that area we can never do quite as well as some other established centres in India. Our natural and comparative advantage lies in a different direction. We have to develop our Department of Social Work specially with an eye to rural and community development, including tribal development. I have taken a little time to elaborate this point because a certain amount of confusion of thought exists on this question. We ourselves need greater clarity of thought in this matter.

Environmental Studies constitute another area of research to which we propose to pay special attention. This is in keeping with the great importance that Tagore attached to the fostering of harmonious relations between man and his natural environment. Enviromental Studies, as an area of scientific research, has come into prominence comparatively recently and we should be happy if we can play some kind of a pioneering role here. We have already initiated measures to step up our activities in this direction.

There is a close relationship between Environmental Studies as a field of research and Life Science as an academic discipline. Those who grasp that relationship and frame their studies and research projects in the light of that understanding will be in the vanguard of a new forward movement in science.

Still talking of the sciences, I have something more of basic importance to report. Visva-Bharati is soon going to have a Computer Centre which hopefully will be of service to a number of departments at the same time.

Rabindra Bhavana is an essential limb of Visva-Bharati and one of its best-known institutions. It includes a museum of international importance, a library and archives, various sections for preservation and other allied activities, and an expanding range of research by our own scholars as well as guest scholars with special attention to Rabindranath and His Age.

Kala-Bhavana had an interesting year culminating in the recent visit of the Prime Minister to inaugurate Nandan Art Gallery and the seminar on 'Sixty Years of Visva-Bharati and its Art Heritage'. Kala Bhavana illustrates one of our principal problems today. It is a problem which it shares with Rabindra Bhavana. These Bhavanas have an impressive store of works of art, but our resources for the proper preservation and display of these rare and priceless treasures are woefully insufficient. This places us in a morally difficult position. The works of art which we have acquired or inherited are of national importance.

Visva-Bharati was conceived as an international university, generously offering its hospitality to scholars from all corners of India and the world. A programme of Visiting Fellowships and Visiting Professorships is, therefore, essential for the realisation of its ideals. This programme had remained suspended for a time and some of you may recall that in my last Annual Convocation speech I complained of lack of funds. I am happy to be able to say now that we have already received some funds, although only a very limited amount, and that Visiting Fellows and Visiting Professors have started joining our university again.

A reference was made above to the Kala-Bhavana seminar on 'Sixty Years of Visva-Bharati and its Art Heritage'. This was, in fact, one of a series of six seminars on different subjects covering, for example, education, literature, music and rural development. At different meetings and seminars organised by Visva-Bharati Study Circle, Professor Probodh Chandra Sen spoke on 'Rajsekhar Bose and the Bengali Language'; Dr. Sivatosh Mookerjee gave a talk on certain aspects of the Life Sciences; Professor Sivaraman discoursed on Mysticism in the East and the West. Sri Badal Sircar gave a talk followed by a demonstration on the Performing Arts. Even from this short and selective list one gets some idea of the variety of subjects on which seminars and symposia were organised in the course of this year.

Visva-Bharati as a university, cannot go very far in the direction of rural constructive work. We recognise the importance of such work and, in fact, we regard it as essential. But there are limits to what we can accomplish. The primary objective of a university is education or, to put in a different way, the production, conservation and distribution of knowledge. We do not pretend to be able to save the Villages by our efforts. For us, rural development work is important as part of our own education. This in itself is a sufficiently difficult task in all conscience. If we can do it well, we will have something to speak for ourselves.

During the last year, we have been trying to work out a special course in Tagore studies. Once ready, we intend to introduce it, perhaps with some variations, for all students. [*Excerpts from the addrsss delivered at the convocation of Visva-Bharati by its Vice-Chancellor, Dr. Amlan Datta*].

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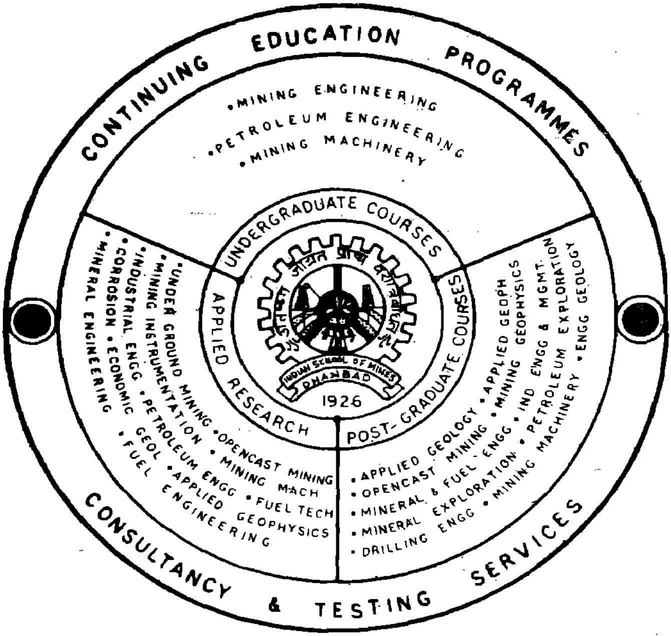

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Campus News

President: Gear education to present needs

President Neelam Sanjiva Reddy said recently at Bangalore that the primary object of education should be to make the first degree course more relevant and responsive to the development needs of the community and emphasise work in the field and practical experience.

Delivering the centenary address of the St. Joseph's College Mr. Reddy said in a competitive environment, in which satisfaction of one's material needs was the primary consideration, education could not be equated with the imparting of enough skill and knowledge for making out one's livelihood but should aim at more than mere transmission of a body of settled knowledge. It should endeavour to promote the scientific habit of mind, he added.

He said with powerful mass media constantly pouring forth propaganda for commercial, political and other ends, a citizen needed more than ever to develop a capacity for sifting facts and evidence and to think objectively. It should be the aim of education to develop such capacity.

He said the Five-Year Plans envisaged that institutions of higher learning, would be encouraged and enabled to involve themselves in the development activities of the community and provide support through extension services of students and faculties. That would not only help the students to extend their frontiers of knowledge but also to use it to help the community.

Mr. Reddy said it was necessary to link the educational programmes to manpower demands both anticipated and existing. He said this was essential for executing development projects for maintaining services and supplies and for different occupation groups. While there were deeper reasons for unemployment among the educated, at part of the problem arises from the want of proper matching between education and employment.

The President said provision of vocational courses leading to employment after the award of certificates and diplomas rather than an academic degree were among the steps considered necessary.

Referring to the increase in the number of institutions offering higher education, Mr. Reddy said the aim should be to bring up the non-viable institutions with low enrolment and inadequate facilities rather than to establish new ones.

He said at the same time the need of the first generation learners, particularly those belonging to economically backward sections, for whom higher education provided an opportunity to improve their social and economic status, had to be taken care of so as to enable them to take advantage of employment opportunities.

Centre plans to improve English teaching

The Central Government is actively considering a scheme aimed at improving the standard of teaching English at the secondary level in the country, according to the Union Minister of State for Education, Culture and Social Welfare Mrs. Sheila Kaul.

Addressing the staff and students of the Central Institute of English and Foreign Languages Mrs. Kaul said the scheme envisaged Central assistance to States and Union Territories on a matching basis. She pointed out that while the Government was committed to the development of all Indian languages and to regional languages becoming the media of education at all levels on the basis of national policy on education "special emphasis needs to be laid on the teaching of English and other major internatonal languages'.

In some regions the teaching of English had not been receiving adequate attention and support, Mrs. Kaul said, calling upon the instiute to draw up suitable programmes and plan effective strategies to remove any such imbalance.

In his welcome address, Prof. Ramesh Mohan, Director of the Institute, said they proposed to set up a Department of Spanish. The expertise of the Institute, which would be celebrating its silver jubilee, next year, was much in demand and it was developing into a regional centre for South-east Asia.

Research centre on human reproduction

The Indian Council of Medical Reserarch has proposed to set up a Regional Research Centre on Human Reproduction in the Department of Obstetrics and Gynaecology, Gauhati Medical College. This centre will carry out research work on human reproduction and genetics. This centre will be the first of its kind in the north eastern region.

The ICMR will provide the training requirements and render other help. The proposed centre under Dr M.P. Gogoi, Prof and Head of the Department of O. & G. Gauhati Medical College, will comeup soon and his will help carry out basic research on human reproduction and genetic and also train both medical and para medical personnel of this region in these fields.

Panel on medical education set up

The Union Health and Family Welfare Ministry has set up a high powered 15-member committee to review the system of medical education in the country. The committee headed by Dr Shanti Lal J. Mehta, former director of Jasiok Hospital, Bombay, would submit its report in six months.

The committee has been set up in the context of the national commitment to attain the goal of "Health for all by 2000 AD."

Besides Mr Mehta, the committee consists of the following:

Dr I. D. Bajaj, Director General of Health Services, Prof. V. Ramalingaswamy, Director General, ICMR, Prof H. K. Tandon, Director, AIIMS, Dr L. M. B Joseph (Vellore), Dr M.M. Mehta (Gujarat), Dr Y. P. Rudrappa, (Bangalore), Dr B. N. Sinha, President, Medical Council of India, Dr Rameshwar Sharma, (Jaipur), Dr P. N. Wahi (New Delhi), Dr P.N. Chhuttani (Chandigarh), Col. R. D. Ayyar (Madras), Dr K. N. Uduppa (Varanasi) and Mr N. N. Vohra, Joint Secretary, Union Health Ministry.

The terms and reference of the committee are to suggest measures aimed at bringing about overall improvement in the under-graduate and postgraduate medical education, paying attention to institutional goals, content, relevance and quality of teaching and training and learning settings and evaluation systems and standards.

It would also recommend the optimum duration of under-graduate and post-graduate courses of study seperately and examine the existing internship programme and to recommend its future pattern.

The other terms and reference of the committee are:

(i) To review the current admission procedures (including entrance tests) and domiciliary restrictions for admissions to under-graduate and post-graduate courses and to make suitable recommendations seperately.

(ii) To review the working of the residency scheme along with the housemanship programme and to make recommendations regarding a uniform pattern of post-gradute training.

(iii) The committee would examine the current requirement of thesis or dissertation as an essential part of post-graduate medical education and to make suitable recommendations in this regard and to examine the feasibility of a period of service in the rural areas for medical graduates and post-graduates.

It would also evolve realistic projections of medical manpower requirements (MBBS doctors, general specialists and super-specialists) during the sixth Five Year Plan. In this context it would consider the needs of Government-based health care programmes, the requirements of doctors in the private sector and the needs arising from bilateral agreements, international commitments and technical co-operation among developed countries.

The committee would also suggest measures to redress regional imbalances in the distribution of medical manpower.

UGC steps to train computer personnel

The Chairman of the University Grants Commission, Dr. (Mrs) Madhuri Shah, has said that the UGC had promoted schemes for creating an adequate level of computer science personnel. This was being done in cooperation with the Electronics Commission and professional societies in the field.

Inaugurating an international symposium on "Education in Informatics" (EDINFO 82), she said in-house campus facilities in this regard had also been generated in many universities and there had been almost a five-fold increase in computer facilities over the last 10 years.

In addition, faculty development schemes along with M. Tech. programmes had been suggested by a committee. The panel had suggested a new master's degree programme in computer applications, or M.C.A.

The UGC, she said, had also proposed computer science as one of the subjects in the first degree stage so that manpower needs at the programmer level could be met. A proposal to introduce training programmes in software engineering and data processing was also being considered.

Dr (Mrs.) Madhuri Shah said that the special committee of experts for judging the present status of computers in the universities had already decided on upgrading machines at some places by introducing certain components and providing new computers in certain others where the situation warranted it for research and development purposes.

She said computers shoud be a central facility for use by instiutions in the region and thus an optimum utilisation of the machines should be made. This could be on the lines similar to the regional instrumentation centers.

Workshop on precambrian rocks

A critical missing link in the chronological chain of the earth's long history of 4,600 million years, has plagued earth and planetary scientists for many years. The latest effort to consider the question is the four-day Indo-U.S. workshop on 'precambrians of South India' held a the National Geophysical Research Institute, Hyderabad recently.

The age of the earth is taken to be about 4,600 million years. But the oldest known rock, discovered recently in Greenland is "only 3,800 million years old."

Three-fourths of Peninsular India consists of rocks older than 600million years. These are known as the precambrians. An overwhelmingly large chunkof the conutry's metallic resources are confined to precambrian rocks. Why is this so?

These aspects are being studied in depth by scientists of the National Geophysical Research Institute (NGRI) through a collaborative programme with American universities, supported by the National Science Foundation of the U.S.

The workshop is being conssponsored by the NGRI, the National Science Foundation, Washington, and the Geological Society of India, Bangalore.

Dr Hari Narain, Director, NGRI. said that about 65 scientists from aboard and India were to attend the workshop. He said a sophisticated Rs. 1.4 crore geochemical laboratory providing facilities for quantitative estimates, upto the required degree of sensitivity and accuracy was being set up at NGRI.

Dr. S. M. Naqvi a scientist of NGRI, said various Institutions and unoversities were working on precambrian rocks during the last four years and in the workshop they would analyse what they had achieved and formulate future plans.

Microbiology department building at OU

The new building for the Osmania University's microbiology department was declared open recently by Health Minister of Andhra Pradesh.

Mr. Madan Mohan, the Health Minister called, upon research scholars in different disciplines to dedicate themselves for solving the various problems faced by the people and to cater to the needs of suffering humanity.

Stating that microbiology was a fast growing science, he said microbiologists played a vital role in evolving measures for controlling diseases and virus.

Research scholars of relevant disciplines should come together and evolve effective methods for controlling environmental and sound pollutions.

Prof. Ram Reddy Vice Chancellor of the university said microbiology was a very useful subject and offered rich potentialities in research. He hoped the department would lay special emphasis on research.

Prof. Polasa,welcoming,said the microbiology department was the youngest one in the university. Microbiology, he said, was introduced at under-graduate level in two private colleges of the university.

Centre for advanced study in Sanskrit

The Ministry of Education, Government of India, has made the Kuppuswami Sastri Reasearch Institute, Mylapore, as a Centre of Advanced Study in Sanskrit Language and Literature and of Higher Research.

An expert committee will be constituted to administer the centre, the first to be so taken over in Tamil Nadu to integrate traditional scholarship with modern research.

The Union Government has already appointed three visiting professors to guide research students, and to take up publication work. A full-time Curator-cum-Editor for manuscripts and research monographs and journal of oriental research, and three research assistants and other staff, are to be appointed shortly.

The Institute will programme for short-term and long-term continuing research schemes. Lecturers and senior students of the Sanskrit College will be awarded fellowships to pursue higher research.

Annual conference of IAET

Mr I.C. Puri, Acting Vice—Chancellor of the Punjab Agricultural University and Chief Secretry to Government, Punjab, said that rural education should not mean an inferior kind of education or education for a less advanced section of the society. The direction in which the society today was going was not necessarily the correct or the only direction leading towards human happiness which was the goal of all progress. The so-called backward may not be so backward after all, he added.

Mr Puri was addressing the 14th annual conference of the Indian

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Association for Educational Technology at the Punjab Agricultural University which ended its 3-day session recently. He said Government schemes should be formulated with man as the centre-piece of all the effort. He is the beneficiary and his welfare should give direction to all Goverment planning and not abstract theories about the supposed good of the society.

Dr Gunvant B. Shah, President of the Association said School and University education was only a small part of total educational process in the country. For instance, two crore people visited a cinema house in India everyday and imbibed ideas from there, he said.

Computer centre at PAU

The Punjab Agricultural University has decided to throw open to other institutions the use of the facilities of its Computer Centre. The Centre has been established in the College of Agricultural Engineering under a scheme of the Indian Council of Agricultural Research and UNESCO who have declared it a 'Centre of Excellence' for studies in agricultural engineering.

NSS to organise 45 winter camps

The National Service Scheme Unit of O.U. has planned to organise 45 College-level winter camps in Andhra Pradesh. The prime object of the unit, according to Dr, D. Babu Rao, Programme Co-ordinator, is to improve the rural, ecological and socio-economic conditions of the villagers.

The higlights of the programme include, the laying of a 2 km road by Badruka College students in Thimmapur in Ranga Reddy district and construction of a well by Nizam College students in Moinabad village.

The V.V, College students have undertaken adult education programmes in Kurmalguda Village.

Highlighting these programmes, Dr Babu Rao said that there is a good response from the students.

The girls of St. Francis Degree College, Secunderabad, have taken up pre-school child development programme as a part of their NSS work. Incidentally this is the first time in NSS for such a programme to be launched.

The Govt. Degree College, Begumpet, which has about 100 NSS volunteers has planned to undertake adult education programme, social service, cultural activities programmes on Food and Nutrition.

The girls will be covering three Begumpet slums.

First prize for PAU veterinary students

The students of the College of Veterinary Science, Punjab Agricultural University, won the first prize for cattle judging and third prize for poultry judging in the All-India Livestock and Poultry Show organized by the Directorate of Extension Education of the Union Ministry of Agriculture held at Udgir (Maharashtra) from 3 to 10 January, 1982.

This is the second time within six months that PAU students have won the first prize. At the Northern Regional Livestock Show held at Srinagar last year, the students of College of Vety Science had also bagged the first prize both in Cattle and Poultry Judging Contests.

News from Agril. Varsities

Pantnagar evolves high-yield pulses

The Pantnagar Agricultural University has evolved high-yielding short duration and disease-resistant varieties of pulse crops.

Pulses are the cheapest and the most important source of protein for the Indian masses. The stagnation in production has led to a steep fall in the per capita availability. According to an estimate, the daily per capita availability of pulses has come down from 65.5 g. in 1960 to a mere 40 g. now.

The scientists have come out with seven new varieties of important pulse crops, including *gram*, *lentils*, *arhar* and *urd*. Most of these varieties have won the farmer's confidence.

The central seed committee, in its meeting held last month, has approved for general cultivation yet another set of four new promising pulse varieties evolved by the Pantnagar University. These include two varieties of *urd* and one each of *gram* and *lentils*.

Both the *urd* varieties, Pant U.19 and Pant U-30, are short-druation types having a production potenial of 10 to 12 quintals a hectare. They are resistant to yellow mosaic virus, which has become a scourge in the urd-growing areas. Pant U-30 is also tolerant to powdery mildew disease, which is now a major problem for pulse growers in southern states.

Both the new *urd* types can be grown either as inter-crops between other kharif crops or as separate crops during the spring or the summer after harvesting sugarcane, potato and wheat.

The most significant feature of the new *gram* variety, Pant G-114, is its restance to the wilt disease. The new variety has a potential of producing between 30 and 35 quintals a hectare.

The *lentil* variety, Pant L- 639 is a very high-yielder besides being resistant to the rust disease, the enemy number one of *lentil* crop. Yield trials have revealed that this, on an average, gives 18 to 19 quintals of *lentils* a hectare against 11 to 14 quintals a hectare in the case of varieties at present in vogue.

Workshop on agronomic fertilizer experiments

A combined, 13th Workshop of All India Coordinated Agronomic Research Project and 10th Workshop of the Long Term Fertilizer Experiment (ICAR) was held in Institute of Agricultural Sciences, Banaras Hindu University from 26th to 30th December, 1981. The workshop was attended by 150 scientists of the country. Prof. Mahatim Singh, Director of the Institute, welcomed the delegates and participants. Inaugurating the workshop the Chief Guest of the session, Dr. K.N. Uduppa, Rector of Banaras Hindu University, emphasised the need of integrated approach to raise the socio-economic status of rural mass. Agricultural production can only be increased if such project operate effectively. Dr. N.S. Randhawa, Dy. Director General, ICAR delivered his keynote address.

The results of practical utility of the project indicated that higher profits have been obtained where pulses, oilseed and fibres were included in the rotations. Studies on production potential of rabi crops in different sequences under varying levels of inputs revealed that gram was the most promising alternative crop to wheat at many centres. At some centres, safflower and groundnut performed well. The research finding on intercropping, mixed cropping, crop choice and double cropping for drylands were also found to be of much importance. Experiments on weed control have also come out with valuable findings.

Out of a number of fertilizer trials conducted throughout the country, urea super granules, lac and sulphur coated urea were found to be better than ordinary urea at many centres. Studies on different sources of phosphates viz nitrophosphates and rock phosphate had been conducted at many places for furture scheduling of fertilizer. Use of Azolla as an organic nitrogenous fertilizer at many centres have given very encouraging results.

Experiments conducted on cultivators fields with different crops (irrigated and unirrigated) throughout the country have also given valuable results particularly on fertilizer schedules. Studies on response of oil seeds, legumes and other improved crop varieties of drylands to fertilizer have also given valuable data of practical utility.

The workshop in its plenary session, discussed at length the future line of work for Agronomic as well as Long Term Fertilizer Experimntes to be undertaken by different centres.

Soil science congress

"Save the soil to serve humanity" will be the motto of the 12th international congress of soil science to be held in Delhi from February 8 to 16.

Organised by the Indian Society of Soil Science under the auspices of the internartonal society of soil science, the congress will be inangurated by the President, Mr N Sanjiva Reddy. It is for the first time that the congress is being held in a developing country.

Over 1000 eminent soil scientists representing about 70 countries will participate in the congress, the theme of which is "Managing soil resources to meet the challenges to mankind".

The congress is expected to evolve strategies to face serious challenges such as meeting the increasing food demand and threat to environment which are the major problems of the tropical regions inhabited by the largest population of the world. It also proposes to prepare guidelines for soil policy for different nations for conserving soil resources, increasing their production potential and combating soil degrading process while at the same time, improving the deteiorated soil.

Improved sickle developed

Agricultural engineers have improved one of the simplest, but the most important, of the farm tools – the sickle.

Developed at the Central Institute of Agricultural Engineering at Bhopal, the improved sickle, named naveen, has been found to be more efficient than those in use for harvesting cereal crops like wheat, rice and barley. It is designed to save man-hours and reduce the drudgery in harvesting.

Field performance tests conducted at the institute show that about 12 man-hours could be reduced by using the naveen sickle to harvest crop in one hectare. This could mean a saving in labour cost of about Rs. 5 to Rs. 6 a hectare. The saving in time is particularly important in view of the shortage of labour during the peak harvesting season.

Ten new crop varieties

Ten new crop varieties, one in paddy, one in cotton, two in pulses and six in vegetables were released by the Tamil Nadu Agricultural University as "Pongal" gifts to the farmers of Tamil Nadu.

The new paddy variety with grains finer than the existing super-fine varieties gives 14 to 59 per cent more yield compared to the existing varieties.

A new green gram variety yields 30 to 50 per cent more than the varieties released by the University earlier.

A new red gram variety released by the university gives 24 to 30 per cent higher yield than the varieties released by the university earlier. The new cotton variety evolved by the university is a long staple super-fine variety.

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Post-harvest technology research centre at PAU

The Directorate of Food Technology, Processing and Marketing of the Punjab Agricultural University has been identified by the FAO for the establishment of a sub-centre for carrying out research work in post-harvest technology.

This programme envisages promotion of agro-industries in the region. It is estimated that with the promotion of agro-industries dealing with the marketing and processing of surplus primary agri-horticultural commodities, better utilisation, more profitable marketing and better economic returns to the farmers would be ensured besides generating more job opportunities in the rural sector.

Science & Technology

Research in new areas of science

Delivering the convocation address at Agra University recently, Prof Nurul Hasan, Vice-President of CSIR, stressed the need for research in the frontier areas of science and technology. He observed that certain areas of science and technology such as microprocessors, microcomputers and materials science should receive greater attention in the universities and research institutes.

Prof Hasan said besides teaching what was well-known, they should widen the horizons of knowledge through research. It was a happy development that the Indian universities were now giving more attention to research and the number of students joining research was increasing.

Prof Hasan said; "It is true that every university cannot have facilities for research in every branch of knowledge. Therefore, there was a need for regional centres, national centres and some international centres where research can be organised."

Integrated energy policy suggested

Prof. M. G. K. Menon, President of the Solar Energy Society of India advocated the concept of an intregated energy systems policy for the country aimed at eliminating fluctuations in each component of the system and ensuring "energy round the clock and round the year".

Addressing the national convention on solar energy organised by the Indian Institute of Science, Bangalore, Prof. Menon emphasised the need for renewable energy sources to replace conventional non-renewable energy. The solution would not be any one source of energy but an optimal combination of all types of renewable energy, including solar, biomass and nuclear.

He pointed out that most of the energy generated in the country was covered by industry, starving the agricultural sector. Solar energy technology should aim at bringing down the cost of devices, making use of the Government subsidies and support through soft loans and exemption of sales tax and octroi

He said the Agriculture Ministry was on its way in implementing a programme of constructing four lakh biogas plants in the country during the Sixth Plan. The figure would slowly be boosted to one million, depending on the tempo evolved. Work was also going on in other field of energy generation such as wind mills. Two biomass research institutes, and one wind energy centre had been set up to pursue research in the fields mentioned.

Investigations for tidal power in Kutch Gulf

The Union Minister of State for Energy, launched the investigation for tidal power in the Gulf of Kutch recently.

He said that of the few sites in the world, which had substantial tidal energy potential, three lay on the Indian coast. Realising the potential for tidal power, the Government had initiated a study with the help of UNDP for identifying the potential sites.

On the basis of this study and the recommendation of the Central Electricity Authority, the Government thought it fit to sanction detailed investigation of the site.

In the first instance, guidance was taken from the experts of EDF of France, where the world's only tidal power station of 240 MW was located. EDF had agreed to send two or three experts to assist Indian officers in drawing up a detailed programme for undertaking the studies.

The Government, intended to double the installed generation capacity in the country in the next seven to eight years. This was expected to double the per capital income.

Mining and eco balance

The Union Minister of State for Home and Parliamentary Affairs has called upon geophysicists to carry out the exploration for mineral resources in such a way that the precarious ecological balance would not be upset.

The Minister was inaugurating the fifth workshop on 'Status, problems and programmes on Cuddapah basin" organised by the Institute of Indian Peninsular Geology (IIPG) at the National Geophysical Research Institute, Hyderabad.

Participants from all over the country and the U.S., Australia and UNESCO atteneded the two-day workshop.

While exploring for mineral resources, the Minister said, scientists should also try to solve environmental problems like pollution of natural waters, the effects of deforestation and imbalances created by heavy concentration of mining activities.

He said the Cuddapah basin was already known to contain an abundance of minerals—metallic and non-metallic. The pattern of their distribution, the mode of occurrence and the evaluation of their quality and quantity had assumed importance in the context of their usefulness to the region.

Prof. C Karunakaran. Chairman of IIPG, who presided, said the Cuddapah basin was one of the richest areas of mineral deposits. It had 75 million tonnes of high-grade barytes. Also this part of the country had a reputation for famous precious stones like the Kohinoor, Regent and Pitt diamonds.

In recent years, studies had shown that serpentine found in the basin had the property of removing the excess flourine found in the ground water of the area for the human system and help cure people of diseases like flourosis considered incurable till then.

Dr. Hari Narain, Director, NGRI, said the Cuddapah basin held tremendous promise for geoscientists.

Mr J. Swaminath, Director-General, Geological Survery of India, dwelt at length on the status of the basin, its problems and programes.

Dr. S Balakrishna, Director, IIPG, said the Cuddapah basin had attracted global attention in view of its great potential. Geophysicists from the U.S., Canada Australia and Japan were engaged in the effort to explore the basin's hidden treasures.

Career guidance abroad

Every year the Laboratory of Youth's Career Guidance, functioning at Tartu State University in Estonia helps more than 3,000 young people, mostly students at secondary schools. At first, during the preliminary talks yonng people are told about the specialities in which they can be trained at University and other educational establishments, on the basis of the results of the sociological studies, about the specific features of the individual, necessary for one or another speciality.

Then the test of general capacity is applied, evolved by researchers. It characterises nine capabilities of young people and comprises twelve sub-tests which involve thinking by images, the general level of development, the ability of perception, the ability to operate figures, mathematical thinking, the ability to operate words, motive coordination, deftness of hand, and the mobility of fingers.

An analysis of the results of the research shows that, for instance, those who enrol at the philological department have a well-developed verbal ability, while mathematicians have more developed spatial imagination and logical thinking. Physicists, along with these qualities, are also good at speech.

At present, young people are more interested in the humanities. The aptitudes of the young people who applied for enrolment at various departments of humanities was analysed and it turned out that in many cases they had a greater capacity for physics and maths. This gave a chance to reorient some young people in their choice of a profession.

In practice each person is talked to separately. He (or she) states his interests, hobbies, favourite and difficult subjects, and the speciality which he wants to choose. The individual is then told about himself. During the talk the teenager learns about his general capabilities and the level of their development, and comes to understand what professions suit him more and what prospects are there for his possible progress in the speciality he has opted for.

It is a rather curious fact that mathematical thinking, the ability to operate figures, and the spatial imagination of some prospective students are higher than their other capabilities, but their marks in humanities subjects are better. What causes this is still not clear.

Studies have shown that the prospective enrolees have insufficient knowledge of their future specialities. That is the Laboratory prepares information materials about various specialities. Most of the teachers of the University, researchers and students take part in this work. The descriptions of different trades and professions give a full idea not only of the specialities but also of the jobs which the graduates can take. Other information — curricula, tables of the students' progress in studies, data on the entrance competitions at different higher and specialised secondary educational establishments have also been prepared for the prospective students. [*Courtesy* : **Soviet Features**]

Geothermal power

On the peninsula of Kamchatka, in the east of Siberia, USSR, and across the Bering Sea from Alaska, the heat from the bowels of the earth is being used to produce 11,000 kilowatts of electricity. That amount of power, generated at the Pauzhetskaya plant, is not great compared to the output of hydro-electric plants, but it is enough to supply the needs of several townships— and Pauzhetskaya is the first geothermal power plant in the Soviet Union.

The experience gained in building and running the plant, which has proved to be highly efficient and is fully automated, will be brought to bear on setting up bigger geothermal plants. Electricity produced by the Kamchatka establishment costs one-third of that generated by a diesel-powered plant of similar size.

In Kamchatka the earth's heat rises to the surface, with the ten biggest thermal water sources there annually sending up as much heat as is produced by burning 200,000 tons of coal.

A large thermal water deposit, which could meet the needs of a 400,000 KW geothermal power station has been discovered near the Mutnovsky volcano on Kamchatka. Wells drilled there produce steam with temperatures reaching 250 degree Celsius. The first phase in building a Mutnovskaya geothermal power station is planned for completion by 1985 in Kamchatka. Exploration is also underway at a very promising deposit elsewhere at Koshelevskoe. [*Courtesy* : **UNESCO Features**]

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(Continued from page 146)

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4. Tiwana, Manjit. A study of personality, self-perception, values and alienation of creative writers. Panjab University. Dr. Jatinder Mohan, Department of Psychology, Panjab University, Chandigarh.

Sociology

1. Alka Rani. Jointness of families among the jat in a town and a large village. Meerut University. Dr. G.C. Hallen.

2. Gupta, Anjula. Modernity among working women in an urban setting. Meerut University. Dr. M S. Raghuvanshi.

3. Gupta, Ashok Kumar. Trade unions among class III and IV employees of L.I.C. in Meerut Division. Meerut University. Dr Dharam Vir.

4. Mahajan, Kamlesh. Antecedents, components and consequences of political efficacy among lower sections in an urban setting. Meerut University, Dr. R.C. Sarikwal.

5. Parmar, Pardeep Singh. Towards an understanding into the nature of social change. Panjab University. Prof. Dharmendra Goel, Department of Philosophy, Panjab University, Chandigarh.

6. Sharda Rani. Migrant families in BHEL. Meerut University. Dr. T R. Singh.

7. Tandon, H L. Role expectations and role-performance of scientists in two agricultural institutes. Meerut University. Dr. Dharam Vir.

8. Toshniwal, Preeti. Doctor-patient relationship in government and private hospitals. Meerut University. Dr. Dharam Vir.

Political Science

1. Sharma, Sadhna. The parliament and supreme court : A study in balance of power. Panjab University. Dr. (Miss) Pam Rajput, Department of Political Science, Panjab University, Chandigarh.

Economics

1. Komudi, Kaur. Underemployment in agriculture, a case study of Punjab. Panjab University. Dr. B.N. Ghosh, Department of Economics, Panjab University, Chandigarh.

2. Mishra, Paras Ram. Settlement machinery and industrial relations in Western coal fields of M P. : A case study of Chhindwara District. University of Saugar.

3. Mishra, Shyam Manohar. Production and marketing of fuel and timber woods in Sagar Division. University of Saugar. Dr. S.S. Tripathi.

4. Suresh Kumar. The role of multinational corporations in developing economics with special reference to India. Maharshi Dayanand University. Dr. S.C. Nandwani, Head, Department of Economics, Maharshi Dayanand University, Rohtak.

Public Administration

1. Agnihotri, Narinder Kumar. Administration of the agricultural extension service in Punjab. Panjab University. Dr. (Mrs.) S. Bhardwaj, Department of Public Administration, Panjab University, Chandigarh.

2. Darshan Singh. District hospital administration in Panjab, Panjab University. Dr. S.L. Goel, Department of Public Administration, Directorate of Correspondence Courses, Panjab University, Chandigarh.

3. Dhawan, Gurbachan Lal. Organization and working of the Public Works Department (Buildings and Roads and Public Health Branches), Govt. of Haryana. Panjab University. Dr. Satya Deva, Department of Public Administration, Panjab University, Chandigarh.

4. Duggal, Sudarshan Kumar. Administration of handlooms : A case study of the organisation and working of Punjab State Textiles Development Corporation Limited. Panjab University. Dr. S.L. Goel, Department of Public Administration, Directorate of Correspondence Courses, Panjab University, Chandigarh.

5. Har Krishan Lal. Self-employment schemes in Panjab : Some administrative aspects. Panjab University. Prof. S.K. Sharma. Department of Public Administration, Panjab University, Chandigarh

6. Klinoubol, Kriengkrai. Organization and working of public health and family planning administration in Thailand. Panjab University. Dr. S.L. Goel, Reader, Department of Public Administration, Panjab University, Chandigarh.

7. Parveen. School administration in Chandigarh : A comparative study of government and private schools. Panjab University. Dr. Satya Deva, Department of Public Administration. Panjab University, Chandigarh.

8. Tarsem Lal. District development planning : A case study of two districts. Panjab University. Prof S.K. Sharma, Department of Public Administration. Panjab University, Chandigarh.

Education

1. Dogra, Neelam. Effect of training in content development strategies upon class room communication behaviour pattern. Panjab University. Dr N.N. Pangotra, Lecturer Department of Education, Panjab University, Chandigarh.

2. Gupta, Dharam Paul. Academic achievement of the underprivileged secondary school students. Panjab University. Dr. N.N. Pangotra, Lecturer, Department of Education, Panjab University, Chandigarh.

3. Pachouli, Satya Prakash. A study of impact of education in social and cultural modernization of scheduled castes in Madhya Pradesh. University of Saugar. Dr. S S. Ahluwalia.

4. Ramesh. Development of objective based science curriculum and to study its efficacy in the acquisition of process skills among high school science students. Panjab University. Dr. G.B. Sodhi. Lecturer, Department of Education, Panjab University, Chandigarh

5. Sangtab, Poona. A comparative study of administrative problems perceived by the primary school administration in the metropolitan schools and the private primary schools of Bangkok. Panjab University. Dr. (Mrs.) I.P. Sharma, Department of Education, Panjab University, Chandigarh.

6. Santosh Kumari. A comparative study of organizational climate of the schools administered by male and female principals and its effect on job satisfaction. Panjab University. Dr. (Mrs.) I.P. Sharma, Lecturer, Department of Education, Panjab University, Chandigarh.

7. Sidhu, Jagraj Singh. Factorial structure underlying achievement in language—mother tongue (Punjabi), and foreign language (English). Panjab University. Dr. N N. Pangotra, Lecturer, Department of Education, Panjab University, Chandigarh.

8. Sriviha, Prayad. Supervisory role of principals Regional Education Division II of Thailand as perceived by self and teachers. Panjab University. Dr. (Mrs.) I.P. Sharma, Lecturer, Department of Education, Panjab University, Chandigarh.

9. Sunita. Teaching styles and pupil growth : An experimental study. Panjab University. Dr. (Miss) Saroj Srivastava, Principal, Dev Samaj College of Education for Women, Ferozepur City.

10. Toprongtong. Stuen. Role expections and the role performance of college supervisors on student-teaching as perceived by school principals. cooperating teachers and student teachers Panjab University. Dr. N.N. Pangotra, Lecturer, Department of Education, Panjab University, Chandigarh.

11. Upinder Kumar. Relative merits of types of procedures of evaluation at higher secondary and graduate levels of examination. Panjab University. Dr. N.N. Pangotra, Lecturer, Department of Education, Panjab University, Chandigarh.

12. Vasesi, Rama. Cognitive styles, needs and values of high and low creative adolescents. Panjab University. Dr. (Miss) S. Gakhar, Reader, Department of Education. Panjab University, Chandigarh.

Commerce

1. Daleep Singh. The role of leading managerial tasks in Indian industries : A case study of the state of Haryana. Maharshi Dayanand University Dr. O.P. Goyal, Reader, Department of Commerce, Maharshi Dayanand University, Rohtak.

2. Kapoor, Vishav Jyoti Project planning and evaluation : A study of projects of India Tourism Development Corporation Ltd., Panjab University. Dr. S.P. Singh, Reader, Department of Commerce, and Business Management, Panjab University, Chandigarh

HUMANITIES

Philosophy

1. Baruah, G.C. A critical study of the Vedic concept of the ultimate reality with special reference to Dr. S. Radhakrishnan's works. Gauhati University. Dr. D.K. Chakravarty.

2. Bawaja, Sudhir Kumar. The nature of communication in arts : Some Indian theories, Panjab University. Dr. (Mrs.) Sneh Pandit, Department of Philosophy, Panjab University, Chandigarh.

3. Bhanu Sree, B.V.S. Buddhist Humanism. Andhra University.

4. George, N.V. Doctrine of incarnation in Vaishnavism and Christianity : A critical and comparative study. Gauhati University. Shri M.K. Kutty, Gauhati University, Gauhati.

5. Nirmal Chand, Ch. A comparative study of American and Soviet philosophies of education. Andhra University.

6. Nongbet, J. Religious philosophy of the Khasis. Gauhati University. Dr. K.C. Das, Gauhati University, Gauhati.

7. Sharma, G. A critical study of Kant's philosophy of logic. Gauhati University, Shri M.K. Kutty.

8. Sharma, Krishna Murari. A Critical study of the Rigvedic mysticism. Panjab University. Dr. K.K. Dhavan, 88, Sector 16-A. Chandigarh.

LITERATURE

English

1. Gill, Sukhjinder Singh. The crisis of identity in the novels of Bernard Malamud and Philip Roth. Panjab University. Dr D R. Sharma, Reader. Panjab University Evening College, Chandigarh.

2. Sahni, Usha. Self-and society in the novels of Robert Penn Warren. Panjab University, Dr. (Mrs) Nirmal Mukerji, Department of English, Panjab University, Chandigarh.

Sanskrit

1. Agnihotri, Maheshdutt. Sanskrit sahitya mein Jardhnarishwar. University of Saugar. Dr. Radha Bhallabh Tripathi.

2. Ahmed, Mohamad S. A literary study of the sanskrit inscriptions of Assam. Gauhati University. Dr. M.M. Sharma, Gauhati University, Gauhati.

3. Bhattacharyya, B.K. Studies in the Atharvaveda with particular reference to the non secular hymns Gauhati University. Dr. B. N. Hazarika, Gauhati University, Gauhati.

4. Deka, N.C. A Critical study of the Prabodhacandrodaya of Srikrsnamista. Gauhati University. Dr. A.C. Barthakuria, Gauhati University, Gauhati.

5. Goswami, N. A study on the concept of appearance in Acharya Sankara and Abhinavagupta with special reference to Paramarthasara. Gauhati University. Dr. P.P. Upadhyaya, Gauhati University, Gauhaii.

6. Patra, Khagendra. A critical study of Gourakrishnodaya Mahakavya composed by Mahamahopadhyaya Govinda Mishra. University of Saugar. Dr. Bal Shastri.

7. Tiwari. Ram Lal. Padchuramani mahakavya ka anusheelan: Ashva shodh ka mahakavya ke sandarbh mein. University of Saugar. Dr. Bal Shastri.

Hindi

1. Devtale, Chandrakant. Muktibodh ke chintan aur kavya ka mulyankan. University of Saugar. Dr. Ganga Dhar Jha.

2. Dhingra, Nirmal Kumari. Ramcharitmanas ke paryayon ka arth-parak adhyayan : Vivakshagat tatha prayoggat. Panjab University. Dr. Darshan Singh, Department of Hindi, Govt. College, Hoshiarpur.

3. Jain, Rajesh Kumar. Dinkar kee kavya chetna : Ek sameekshatmak adhyayan. Dakshina Bharat Hindi Prachar Sabha.

4. Kalia, Veena. Swami Dayanand kee vichar dhara ka Hindi kavya par prabhav. Panjab University. Prof. Bhawani Lal Bhartiya, Chairman, Department of Dayanand Chair for Vedic Studies, Panjab University, Chandigarh.

5. Khare, Kamini. Charkhari rajya kee sahitik prampara. University of Saugar. Dr. B.P. Tiwari.

6. Kistwar, Rekha. Hindi natakon mein trasdee. University of Saugar. Dr. M.P. Jaiswal.

7. Mishra, Arun Kumar. Chhayavad kee vrahddathi mein manavvadi chetna ka swarup. University of Saugar. Dr. Ganga Dhar Jha.

8. Mishra, Ram Kumar. Premchand ke upanyason mein chitrit parivarik sambandhon ke adhyayan. University of Saugar. Dr. Bhagirath Mishra.

9. Murthy, Aruna. Satthottari Hindi kavya kee vishisht pravrittiyan. Dakshina Bharat Hindi Prachar Sabha.

10. Nema, Suresh Chandra. Bundelkhand ke bhakti kavya ka anusheelan. University of Saugar. Dr. B.P. Tiwari.

11. Om Prakash. Arya samaj kee Hindi dharmik aur darshnik sahitya ke den. Panjab University. Prof. Bhawani Lal Bhartiya, Chairman, Department of Dayanand Chair for Vedic Studies, Panjab University, Chandigarh

12. Pannir Selvam, C. Upendranath Ashak ke natak : Ek sameekshatmak adhyayan. Dakshina Bharat Hindi Prachar Sabha.

13. Patnaik, Gita. Sanwalpuri aur chhatisgarhi lok geeton ka tulnatmak adhyayan. University of Saugar. Dr. Bhanudev Shukla.

14. Phariduddin, Mohammad. Rahee Masoom Raza ke upanyason ka samaj shastriya adhyayan. Dakshina Bharat Hindi Prachar Sabha.

15. Ramakotayya, V. Rajendra Yadav evam Mannu Bhandari ke upanyason mein anusyoot jeevan mulya. Dakshina Bharat Hindi Prachar Sabha.

16. Rawat, Usha. Chritra chitran kee drishti se 'Manas' Saket aur Urmila mahakavyon ka tulnatmak anusheelan. University of Saugar. Dr. N.N. Dubey.

17. Ray, Shankar. The treatment of vatsalye ras in the literature of Sur Das and Madhab Dey. Gauhati University. Dr. B. Tiwari. Gauhati University, Gauhati.

18. Renu Rani. Swatantrayottar Hindi natak sahitya : Natya-vyapar ke sandarbh mein. Panjab Univerrity. Dr. V.R. Mehndiratta, Department of Hindi, Panjab University, Chandigarh.

19. Revati, S. Agneya evam Muktibodh ke kavya bimbon ka tulnatmak adhyayan. Dakshina Bharat Hindi Prachar Sabha.

20. Rupinder. Swatantrata-purva Hindi tatha Punjabi upanyas ka kathyagat tulnatmak adhyayan. Panjab University. Dr. M.P. Bhardwaj, Chairman, Department of Hindi, Panjab University, Chandigarh.

21. Sadafal, Kirtimala. Yashpal ke upanyason mein samayanjan ke chitran ka swarup. University of Saugar. Dr. Govind Dwivedi.

22. Safatika Renu ke katha sahitya mein chitrit gram chetna : Ek anusheelan. University of Saugar. Dr. Bhanudev Shukla.

23. Shaik Madar Sahib. Sri Balasowri Reddy ke

upanyason main vastu shilpa. Dakshina Bharat Hindi Prachar Sabha..

24. Sharma, Narendra Kumar. Hindi ke swachhandtawadi kavya ke sandarbh mein Ramanuj Lal Srivastava ke kavya ka adhyayan University of Saugar. Dr. K.K. Jain.

25. Sharma, Radhey Shyam. Usha Devi Mitra ka katha sahitya. University of Saugar. Prof. K.K. Jain.

26. Shraman, Yashswati Pracheen evam madhyakaleen Bhartiya arya bhashaon ke kosh vigyan ke sandarbh mein Hindi ke kosh sahitya ka adhyayan. Dr. K.K. Jain.

27. Subramanyam. S. Tulsi, Valmeeki, Kambar evam hathanakon ka tulnatmak adhyayan. Dakshina Bharat Hindi Prachar Sabha.

28. Swarnkar, Manharan Lal. Tulsi dwara prekshepit jeewan mulya aur vichardhara : Ek anusheelan. University of Saugar. Dr. M.P. Jaiswal.

29. Tiwari. D. A critical srudy of the works of Acharya Devendra Nath Sharma. Gauhati University. Dr. D. Tiwari, Gauhati University, Gauhati.

30. Tiwari, Ramesh Prasad. Hindi ke samajik Upanyason mein vyang ke swarup ka anusheelan, 1950-1980. University of Saugar. Dr. Govind Dwivedi.

31. Tripathi, Prabhat Kumar. Muktibodh ke kavya ke vishesh sandarbh mein prativaddita kee prakriti ka anusheelan. University of Saugar. Dr. Ganga Dhar Jha.

32. Viedehi. Girija Kumar kee kavya krutiyon mein bhava chetna. Dakshina Bharat Hindi Prachar Sabha.

Punjabi

1. Gill, Surinder Singh. Banned political Punjabi poetry, 1900-1975. Panjab University. Prof V.N Tewari, Department of Panjabi, Panjab University, Chandigarh.

2. Kulwant Kaur. Concept of tragedy in medieval Panjabi kissa kav. Panjab University. Prof. Attar Singh, Chairman, Department of Sheikh Baba Farid Chair, Panjab University, Chandigarh.

3. Narindr Pal Kaur. Critical and comparative study of Yusaf Zulaikahn by Abdul Sattar and Hafiz Barkhurdar. Panjab University. Dr. Darshan Singh, Deparment of Panjabi, Panjab University, Chandigarh.

4. Rajinder Singh. Panjabi kissa kav utte sufi matt da parbhav. Panjab University. Prof. Attar Singh, Chairman, Department of Sheikh Baba Farid Chair, Panjab University, Chandigarh.

History

1. Sangkima. Society and social changes of the Mizos 1890-1947. Gauhati University. Dr. J.N. Phookan, Gauhati University, Gauhati.

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THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Srivastava, Anita. Determinants of premarital sexual attitudes and behaviour among late adolescent girls. University of Delhi.

Sociology

1. Palani, M. Our modern theatres and social change. Saurashtra University.

2. Ray, Ramji. The social reality of deviant behaviour. Karnatak University.

3. Sharma, Dinesh Kumar. Socialization among the transhumant Gujjars of Kashmir with special reference to educational system. Meerut University.

4. Shivaramakrishnan, G. Sociology of indigenous medicine. Bangalore University.

Political Science

1. Bava, Noorjahan. Citizen participation in development administration : An empirical study of selected districts in Tamil Nadu. University of Delhi.

2. Das, Narayanprasad. Social and industrial factors in agrarian factors. University of Calcutta.

3. Gaur, Harprakash. Saraswati aur rashtriya jagran, 1900-1920. Jawaharlal Nehru University.

4. Joshi, Govindi. Party, ideology and the youth in People's Republic of China. University of Delhi.

5. Maman Chand. Union-state financial relations in India since 1967. Meerut University.

6. Narayanan, Padmini R. Scheduled caste politics: A socio-political study of special representation in parliament. Jawaharlal Nehru University.

7. Rao, Tajwar. Role of minorities in district politics: A study of Bohras of Udaipur. University of Rajasthan.

8. Sandhya Devi. Gandhi and the partition of India. Panjab University.

9. Sharma, Bhagwan Swarup. Bharat-Mauritius Sambandh: Ek vishleshnatmak adhyayan. Jiwaji University.

Economics

1. Acharya, K.C.S. Food security system of India: Evolution of the buffer stocking policy and its evaluation. Bhopal Vishwavidyalaya.

2. Aima, Ashok Kumar. Surplus manpower in rural sector. University of Jammu.

3. Bajpai, A.D.N. A study of acquisition and distribution of ceiling surplus agricultural lands in Jabalpur Division. University of Jabalpur.

4. Bhatia, Jai Kishan. Insurance corporation investments in India with special reference to Madhya Pradesh. Jiwaji University.

5. Chandel, R.S. Raipur zile kee krishi aaye, bachat evam viniyog. Ravishankar University.

6. Dhar, Pranab Kumar. Financing of Assam's plans. Gauhati University.

7. Goldar, Bishwanath. Some aspects of technological progress in Indian manufacturing industry. University of Delhi.

8. Gupta, Kishun Prasad. Agricultural labour in Jalaun District (U.P.) : An economic study. University of Saugar.

9. Kohli, Udesh Kumar. Information system for social cost-benefit analysis. University of Delhi.

10. Patel, M.S. A study of economic conditions of tribal labour in forest villages in Jabalpur Division (M.P.). University of Jabalpur.

11. Pratap Jai Karan Singh. Pashchimi Uttar Pradesh mein bhumi heen shramikon ka adhyayan. Meerut University.

12. Sidheshwar Nath : A socio-economic study of Gandak Command Are[illegible] special reference to Eastern UP. [illegible]

13. Tilak, [illegible] Inequality in returns to educ[illegible]).

14. Yadav, Hari Singh. Gwalior zile ke vishesh sandarbh mein Madhya Pradesh ke grameen vikas ka karyakramon ka prikshan. Jiwaji University.

Education

1. Bankar, H.R. Construction and standardization of abstract reasoning test for the students in Grades VIII and IX of the secondary schools of Saurashtra. Saurashtra University.

2. Bhowmick, Kanailal. The development of social education in Tripura and Cachar. Gauhati University.

3. Dave, J.G. Evolving and trying out a test of creativity *in writing in Gujarati for Std. X pupils of Saurashtra Area*. Saurashtra University.

4. Dhar, Ratna. An analysis of the emergence of the sense of humour in children and its educational implications: University of Jammu.

5. Garg, Vije Pal. Cost analysis of the university of Panjab, 1950-51 to 1974-75. Panjab University.

6. Sattarsakwala, Harjlal Girdharilal. Trying out a strategy of bringing about attitudinal changes in the centre of *population education. South Gujarat University.*

7. Sujatha, Kalimili. An investigation into the constraints on education of the Nellore District Yonodies with a view to suggest some strategies in non formal education. Andhra University.

8. Wangu, Ravi Shanker. Socio-psychological correlates of disciplined-indisciplined behaviour among university students. Panjab University.

Commerce

1. Dixir, Narendra Ramchandra. Business policy in co-operative spinning mills in the Gujarat.'South Gujarat University.

2. George, K.T. Optimisation problems in international marketing. Indian Institute of Technology, Bombay.

3. Kulandaiswamy, V. Development of dairy cooperatives in Tamil Nadu : A case of Erode Milkshed Area. Karnatak University.

4. Mehta, J.M. Some aspects of personnel management in cotton textile industry in Gujarat. Saurashtra University.

5. Muthukrishnan, B.V. A study on the impact of incentives on labour performance in six industrial units. *Indian Institute of Technology, Bombay.*

6. Ranganatham, M. A study of social responsibilities of large scale industrial units in India. Bangalore University.

7. Shukla, Chintamani. Personnel management in coal industry in India with special reference to Madhya Pradesh. University of Saugar.

8. Sundresh, G.S. Management techniques in Modern Bakeries (India) Limited, New Delhi (A Government of India Undertaking) Jiwaji University.

Management

1. Johri, Lalit Mohan. Corporate behaviour of multi-*national corporations in India : A study with special reference* to the drug and pharmaceutical industry. University of Delhi.

2. Narayan Datt. A study of multi-national corporations in India. University of Delhi.

3. Subramanyan, Bhavani. A study of organization structures of large-scale Indian business corporations. University of Delhi.

HUMANITIES

Philosophy

1. Bandyopadhyay, Amita. Problem of contrafactual conditionals. University of Calcutta.

2. Bimala Kumari. Recent trends in Hinduism with special reference to Arya Samaj. University of Bihar.

3. Goyal, Divya Abha. Samkaleen Bharatiya darshnikon mein dharam kee avdharna. University of Indore.

4. Singh, Anjani Kumar. Sri Aurobindo ka poorna yog tatha anya yog sampradaye : Ek tulnatmak adhyayan. University of Gorakhpur.

5. Srivastava, Chandra Prakash. Concept of subjectivity and freedom in Jaspers. University of Gorakhpur.

Religion

1. Gupta, Indu. A comparative study of Buddhism and Vedanta based on a comparison between Mulamadhyamaka Karika of Nagarjuna and Mandukya Karika of Gaudapada. University of Delhi.

Linguistics

1. Mukhopadhyay, Asok Kumar. Phonological system of French and Persian : A comparative study. University of Calcutta.

Fine Arts

1. Arshi, Pardeep Singh. Sikh architecture in the Punjab. Panjab University.

Literature

English

1. Deshmukh, Sadanand Jagannath. The comic vision of P.G. Wodehouse. Nagpur University.
2. Mathur, Satish Chandra. Realism in the plays of Arthur Miller. Meerut University.
3. Mohan Rao, Chandramahanti Madan. The portrait of the hero in the novels of Manohar Malgaonkar. Andhra University.
4. Ramaiah, T. Narasimha. Historical fiction of John Masters : A study. Kakatiya University.
5. Sharma, Sudershan. The influence of Gandhian ideology on Indo-Anglian fiction. Saurashtra University.
6. Shrivastava, S.B. A critical study of imagery in T.S. Eliots poetry. University of Jabalpur.

Sanskrit

1. Aruna Devi. A cultural study of Ananda Ramayana. University of Delhi.
2. Mishra, Vishwambhar. Brahmanon mein yogya kee avadharana. University of Gorakhpur.
5. Rai, Usha. Kalidasottar mahakavyon mein prakriti chitran 12vin shati tak. University of Gorakhpur.
4. Sharma, Ranjeet. Adhunik pramukh sanskrit mahakavyon mein rashtriya chetna. Meerut University.
5. Tiwari, Hari Narain. Vyakarnon ka gafotvad. University of Gorakhpur.
6. Tiwari, Onkar Nath. Rigved ke darshanik siddhanton ka sameekshatmak adhyayan. Magadh University.
7. Vij, Asha. Naradiya purana ka sahityik adhyayan. University of Delhi.

Punjabi

1. Madahar, Sadhu Singh. Puran Singh da kavi sidhant: Bharti te pachhami kavi shastra de sandarbh vich. Panjab University.
2. Pandohal, Gurdev Singh. Panjabi bara maha : Ek adhyayan. Panjab University.
3. Somal, Karnail Singh A study of free verse in Punjabi upto 1950. Panjab University.

Hindi

1. Agarwal, Renu. Reetibaddha kaviyon kee bhakti bhavna. Meerut University.
2. Arora, Chandra Kumari. Swatantryottar Hindi upanyason mein nagar jeevan. University of Delhi.
3. Arvind Kumar. Swatantaryottar Hindi ka attam vikasatmak sahitya : Nibandhon ke vishisht sandarbh mein. Panjab University.
4. Dikshit, Durga Prasad. Braj evam Bundeli kathaon ka sanskritik evam etihasik adhyayan. Awadhesh Pratap Singh University.
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i) **Assistant Professor**

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a) **Essential**

Doctorate in Physics, Chemistry, Electrical Engineering of Mechanical *Engineering with good academic* record and *at least* three years of professional experience in the areas of Lasers or Laser technology with good research/development record, outside the work for degrees as evidenced by research publications in journals of repute and, or developmental project reports.

b) **Desirable**

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Scale of Pay : Rs. 700-40-1100-50-1600.

Qualifications

a) **Essential**

Doctorate in Physics, Chemistry, Electrical Engineering or Mechanical Engineering with good academic record and adequate research and *development* experience *resulting* in research *papers of good* quality.

b) **Desirable**

Some teaching research experience and a strong interest in developing undergraduate/post-graduate programmes and also in research and developmental activities in the areas of lasers, laser technology, electronic instrumentation or scientific instrumentation.

The Laser laboratories are fairly well equipped with different types of lasers and laser systems as *well* as related spectroscopy and microwave equipment. A number of candidates have been trained for Ph.D. and Master degrees in these laboratories. The Institute has well equipped laboratories and central facilities. The Computer Centre has DEC 10, and PDP 1 systems as also ECIL TDC 216 and a group of *experienced programmers*. The following central facilities are available. 2MV Van de Graff accelerator, 4096 multi channel analyser and other radiation *detection equipment*, liquid nitrogen and liquid helium plants, NMR, EPR, Mass Spectrometers **X**-ray laboratory, UV and IR spectrometers, Glass *Blowing shop, Crystal Growth facility* Precision Machine Shop, Electron Microscope besides a large workshop for the fabrication of specialized research apparatus. *The Institute* has a library with more than 1,50,000 volumes and 1,300 periodicals.

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In the category of Lecturers, special *consideration will* be given to disabled persons, possessing the requisite pualifications and whose handicap will in no way be impediment to their assigned duties.

Posts are *permanent* and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year the appointment *will* be on probation. Besides *the* pay, *posts carry* allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at *Kanpur*. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be *paid second class railway fare from* the place of duty in India to Kanpur and back by the shortest route.

Applications from within India must be made on prescribed form obtainable fee of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied by a postal order for **Rs 7.50** (**Rs 1.87** for Scheduled Castes/Tribes candidates).

Candidates who have applied in response to advertisement No. 3/81 need not apply afresh.

Applicants from abroad may apply on plain paper enclosing complete bio-data and names of three referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P. (India) **on or before February 15, 1982.**

GUJARAT AGRICULTURAL UNIVERSITY

Sardar Krushinagar

Dist. Banaskantha-385506

Advt. No. 1/82

The Gujarat Agricultural University is in need of an outstanding scientist having adequate academic and research background and experience in the field of Agricultural Chemistry and Soil Science particularly the crop nutrition aspects, initially for a period of three years for *IFFCO Chair. It is likely to* be extended as IFFCO Chair for research in Agricultural Chemistry and Soil Science.

The Scientist is likely to be posted at first *instance at* **Junagadh**. Gujarat Agricultural University Employees can also apply. Persons who have not worked on the post of Associate Professor or its equivalent are not likely to be considered. Deserving person will be appointed in the pay scale of **Rs.** 1500-2500.

The candidates who fulfil the qualifications and desire to apply may send their application on plain paper with *six copies of Bio-data* to the Registrar, Gujarat Agricultural University, Sardar Krushinagar, Dist. Banaskantha, 385506.

The candidates applying for the post will *have to send the* I.P.O. of **Rs 10**/- drawn in favour of Comptroller, Gujarat Agricultural University, Sardar Krushinagar. The Candidates already *in service of this University* should send their application without I.P.O. through proper channel.

The candidates who had applied earlier in response to this office Advertisement No. 7/81 *need not apply* again.

The last date of receiving the application is **10-2-1982.**

REGISTRAR.

GUJARAT AGRICULTURAL UNIVERSITY

Sardar Krishinagar, Dantiwada

Advertisement No. 2/82

Applications are invited for the post of Associate *Professor* (Data Processing) in the scale of Rs. 1200-1900. The candidates who *fulfil* the qualifications and desire to apply may send their applications on plain papers with six copies of Bio-data to the Registrar, Gujarat Agricultural University, Sardar Krishinagar, Dist. Banaskantha-385506 on or before **10-2-1982**.

Qualifications

1. Second Class *Bachelor's* degree in the faculty of Basic Science in Statistics or Mathematics.
2. Second Class Master's degree in the concerned field
3. *Ph.D. in the concerned field.*
4. Atleast 5 years experience in teaching and data processing.

Age : Below 45 years.

Relaxation

1. Candidates with pass class either *in bachelor's degree* or *in Master's* degree (in any one) but having at least 10 years experience in concerned faculty will be considered.
2. *Ph.D.* degree *is relaxable in case* of candidates having atleast second class Master's degree in the concerned field with Ten years total *experience.*
3. Age *relaxable in the case of* outstanding candidates and in case of persons already in the employment of this University.

Note:

Period spent under P.G. Training except in service P.G. Training *will* not be considered as experience.

The candidates applying for the post *will have to send an I.P.O* of ***Rs. 10***/- in favour of "Comptroller, Gujarat

Agricultural University, Sardar Krishinagar (Dantiwada)". The candidates already in the service of this University should send their applications without the I.P.O.

The candidates should send their applications through proper channel. All candidates called for interview will have to attend the same at their own cost.

REGISTRAR

MAHARSHI DAYANAND UNIVERSITY
ROHTAK

Advt. No. 1/82

Applications on the prescribed forms for the categories at serial Nos. 1 to 3 and on plain paper for categories at S. Nos. 4 & 5 are invited (through proper channel in the case of those already in employment) for the following posts :

University Teaching Departments

Readers in

Law (1), History (1), Sanskrit (1), Political Science (1) and Hindi (1) (The post in Hindi is against leave vacancy upto 29.5.83).

Qualifications

Readers

A consistently good academic record with a doctoral degree and evidence of being actually engaged in research.

About 5 years' experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Specialization

Reader in Law : Company, Taxation and Mercantile Law.

Reader in History

Medieval Indian History.

Reader in Sanskrit : Grammar.

For the post of Reader in Political Science and Reader in Hindi no specialization is prescribed.

Non-Teaching Posts

2. **Assistant Sports Officer-2 (Male 1, Female 1)**
   (Rs. 700-30-850/900-40-1100-EB-50-1400).

Qualifications

- i) M.A. (Physical Education) or M.P. Ed in the second Division.
- ii) Five years' experience in a University / college. Preference will be given to N.I.S. trained persons.

3. **Research Assistant in Mathematics-I**
   (Rs. 700-30-850/900-40-1100-EB-50-1250).

Qualifications

- i) **Essential**
  M.A./M.Sc. in Mathematics or Mathematical Statistics with atleast 50% marks.
- ii) **Desirable**
  - a) Experience of Computer programming and of working in a similar capacity in a University/Research Institution.
  - b) Knowledge of French/German/Russian.
  - c) Knowledge of Shorthand.
  - d) Typing speed of 30 W.P.M.

4. **Sectonal Officer (Civil)—I**
   (Rs. 600-20-700-30-850/900-40-1100).

Qualifications

Three years diploma course in Civil Engineering from a Polytechnic recognised by the State Government, with atleast three years' experience as Junior Engineer or of an equivalent post of the trade.

5 **Proof Reader-I**
   Rs. 525-15-600-20-660/700-30-850-EB-890-40-1050).

Qualifications

Atleast a Post-graduate with 5 years' experience as Proof Reader in a University/Govt. office or a reputed concern. Knowledge of Hindi and English essential.

U.G.C. pay scales for all categories of teaching posts with usual allowances and benefit or contributory provident Fund as per University rules. Reservation for Ex-Servicemen/B.C./S.C./S.T. candidates as per rules and no application fee from them.

Higher start admissible in deserving cases and for internal candidates. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or decreased.

Applications on the prescribed forms for categories at S. Nos. 1 to 3 and on plain paper for S. No. 4 and 5 with attested testimonials and crossed postal order(s) for **Rs. 10/-** in favour of the Chief Accounts Officer payable at post office, Rohtak be sent to the Registrar by **15-2-1982.** The application form can be had from the Assistant Registrar (General) on payment of **Rs. 2/-** at the counter and **Rs. 3/-** by ordinary post.

REGISTRAR

UNIVERSITY OF DELHI

Advt. No. Estab. IV/72/82 **11th January, 1982.**

Applications on the prescribed form are invited for the following posts:

Department	Designation
Psychology	i) One Professor
	ii) One Lecturer
Economics	i) @Three Professors (one in Mathematical Economics)
	ii) One Reader
English	Two Readers (One for South Campus)
Chemistry	i) One Professor
	ii) Two Readers
Zoology	i) One Professor
	ii) One Reader
	iii) One Research Associate
	iv) *One Laboratory Attendant (Reserved for Scheduled Tribe)

Note: Against the post reserved for Scheduled Tribe, general category candidates may also apply. However, they shall be considered only if no suitable Scheduled Tribe candidate is available.

Hindi	i) One Professor
	ii) Two Readers (One for South Campus)
	iii) One Lecturer (Temporary till 31.11.1982)
Education	i) One Professor
	ii) One Lecturer
Urdu	One Reader
History	Three Readers
Physics	i) @One Reader in Ionosphere Physics
	ii) *One Technical Assistant (Reserved for Scheduled Tribe).

Note: The candidates other than the category of Scheduled Tribe and who possess the required qualifications can also apply for this post. However, their candidature will be considered in case no Scheduled Tribe candidates is found suitable.

	iii) *Two Laboratory Attendants (Reserved for Ex-Servicemen)

Note: The candidates other than the category of Ex-Servicemen and who possess the required qualifications can also apply for this post. However, their candidature will be considered in case no Ex-servicemen candidate is found suitable.

Mathematics	Two Lecturers (One Temporary till 3.8.1983)
Sanskrit	i) One Professor (South Campus)
	ii) 3 Readers (2 for South Campus)
	iii) One Lecturer
Chinese and Japanese Studies	i) One Professor of Chinese Language and Literature
	ii) One Research Associate
Modern Indian Languages	One Lecturer in Oriya
Persian	i) Two Lecturers (Temp. upto May, 1983)
	ii) One Research Associate
Commerce	i) One Reader (International Finance & Liquidity)

	ii) One Lecturer
Philosophy	Three Lecturers
Linguistics	One Reader
Sociology	One Lecturer
Faculty of Law	
i) Campus Law Centre	Four Lecturers (Two temporary one upto 31.8.83 and other upto 12.11.1983)
ii) Law Centre-I	One Lecturer
iii) Law Centre-II	i) One Reader ii) One Lecturer
Political Science	i) One Reader ii) One Lecturer (Temp. till 31.8.83)
Faculty of Science	@One Reader in History of Science and Scientific Methods
Engineering Deptt.	i) *One Assistant Engineer (Civil) ii) *Three Junior Engineers (Civil) (One Reserved for Scheduled Caste and one for Scheduled Tribe)
Central Office	i) Assistant Registrars / Administrative Officers/Assistant Controllers of Examinations ii) One Helper for Guest House (Reserved for Scheduled Caste)

Note: General category of candidates would also be eligible to apply for the post of Helper. However, their candidature would be considered only if no suitable Scheduled Caste candidate is found for the post.

Botany	i) *One Senior Technical Assistant (Herbarium) ii) *One Technical Assistant (Reserved for Scheduled Caste)
Graphic Arts Centre (University Press)	i) *One Senior Technical Assistant ii) *One Technical Assistant iii) *One Dark Room Technician iv) *One Operator
Computer Centre	i) One Senior Programmer ii) Two Junior Programmers iii) *Two Console Operators (One for Scheduled Caste and other for Scheduled Tribe).
Anthropology	*One Senior Laboratory Assistant

@Indicates that the post is being re-advertised. Those who have applied in response to our earlier advertisement need not apply again, but in case they have any additional information to supply, they may do so.

The scales of pay of the posts are:

Professor Rs. 1500-60-1800-100-2000-125 2-2 00.

Reader Rs. 1200-50-1300-60-1900.

Lecturer Rs. 700-40-1100-50-1600.

Research Associate, Consolidated monthly emoluments as under :

A Rs. 1100/-p.m. (fixed) B Rs. 1300/-p.m. (fixed) C Rs. 1500/-p.m. (fixed)	On the recommendation of the Selection Committee

Senior Programmer Rs. 1100-50-1600.

Assistant Registrar/Administrative Officer/Asstt. Controller of Examinations/Junior Programmer : Rs. 700-40-900-EB-40-1100-50-1300.

Asstt. Engineer (Civil) Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200.

Senior Technical Assistant/ Console Operator : Rs. 550-25-750-EB-30-900.

Technical Assistant/Junior Engineer Rs. 425-15-500-EB-15-560-20-700.

Sr. Laboratory Assistant : Rs. 3 80-12-500-EB-15-560.

Dark Room Technician/Operator: Rs. 260-6-326-EB-8-340-10-380-EB-10-430.

Laboratory Attendant: Rs. 210-4-250-EB-5-270.

Helper : Rs. 196-3-220-EB-3-232.

All posts, except that of Research Associate carry D.A., C.C.A. and H.R.A. as admissible under the rules in force in the University from time to time.

Essential Qualifications For

Professorship: A Scholar of eminence.

Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable.

Readership

Good academic record with first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work.

Independent published work (in addition to the published work mentioned above) with atleast 5 years' teaching experience in Honours/Post-graduate Classes essential.

Lecturership: (Other than Law)

Good academic record with a first or high second class Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Note : Second class would mean at least 50% marks in the subject or equivalent grade.

Desirable

(i) A Doctor's Degree or evidence of Research work of equivalent standard in the subject concerned.

(ii) Teaching experience of Degree/Post-graduate Classes.

Provided if a teacher is not a Ph.D./M.Phil./M Litt. at the time of his/her appointment and does not qualify himself/herself for the award of Ph.D./M.Phil./M.Litt. degree from a recognised University in the subject which is being taught by him/her within a period of 8 years from the date of his/her appointment or does not give evidence of research work within that period in the subject concerned, he/she shall not be entitled to any future increments after the expiry of the said period of 8 years till such time he/she fulfils the above mentioned requirements.

Lecturership in Law

Consistently good academic record with a first or high Second Class (B+) Master's degree in Law or an equivalent degree of a foreign University in the subject concerned.

Explanation

Consistently good academic record would mean overall record of all assessments throughout the academic career leading to the Master's Degree, which should be at least B+ or high second class.

Research Associates

Consistently Good academic record with first or high second class (B+) Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Note : Initial appointment will be for a tenure period of three years extendable by another two years only. In no case the tenure will extend beyond 5 years in all.

Senior Programmer

(a) Atleast a second class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics, Operational Research or Physics.

OR

Atleast a Second Class (not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised institution; and

(b) (i) Atleast five years experience in Computer Programming at a recognised institution, and

(ii) Knowledge of atleast one of the high level languages like Fortran, Cobol, Algol, PL/I, and extensive experience of developing programmes for complex problems;

OR

A Ph.D. Degree from a recognised institution in Computer related disciplines like Systems Programming, Numerical Analysis, Artificial Intelligence, Theory of Computability and Theory of Formal Languages.

Junior Programmer

(a) Atleast a Second Class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics, Operational Research or Physics;

OR

Atleast a Second Class (Not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised institution; and

(b) (i) Atleast two years' experience in Computer Programming at a recognised institution.

(ii) Knowledge of one of the high level languages like Fortran, Cobol, Algel, PL/I.

Note : "Relaxation of any of the qualifications may be made in exceptional cases, in respect of all posts of Junior Programmer and above on the recommendations of the Selection Committee".

Console Operators

(a) Atleast a second class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics, Operational Research or Physics;

OR

Atleast a second class (not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised institution and

(b) Familiarity with Console Operation.

Asstt. Registrar/Administrative Officer/ Asstt. Controller of Examinations

A Second Class Master's degree with 10 years office experience of which at least 5 years should be in a supervisory capacity.

Note : Relaxation of any of the qualifications may be made in exceptional cases in respect of Assistant Registrar/Administrative Officer/Assistant Controller of Examinations on the recommendation of the Selection Committee.

Senior Technical Assistant (Herbarium)

M.Sc. or B.Sc. with Botany as one of the subjects. Should have specialization in taxonomy and experience of working in Herbarium.

Technical Assistant (Botany/Physics)

Graduate in Science. Experience in laboratory techniques of the subject.

Senior Laboratory Assistant (Anthropology)

i) Higher Secondary or equivalent examination with Science subjects.

ii) 5 years experience as Junior Laboratoty Assistant in an Anthropological Laboratory.

Assistant Engineer (Civil)

Degree in Civil Engineering of recognised University and two years' experience after graduation.

OR

Diploma in Civil Engineering from a recognised Institution with minimum experience of 7 years and should be able to design R.C.C. work of efficiently.

Junior Engineers (Civil)

Must hold Diploma in Civil Engineering of a recognised Institute with atleast 2—3 years' experience as a Junior Engineer in an Institute of repute.

Graphic Arts Centre

Senior Technical Assistant

i) Higher Secondary/Senior Secondary School Certificate (10+2) with Science subjects (Physics & Chemistry).

ii) Diploma or Degree in Photography, Graphic Arts or Printing Technology from a recognized Institute.

iii) 8 years experience of Micro filming, Micro-fische camera and processing.

Technical Assistant

i) Higher Secondary/Senior Secondary School Certificate (10+2) with Science subjects (Physics & Chemistry).

ii) Diploma or Degree in Photography, Graphic Arts or Printing Technology from a recognized Institute.

iii) 5 years experience of Micro filming and use of Micro fische camera with knowledge of processing films.

Dark-Room Technician

i) Higher Secondary/Senior Secondary School Certificate (10+2) with Science subjects (Physics & Chemistry).

ii) Working experience of developing, fixing and finishing of micro-film, micro-fische film and making of bromides and ammonia prints.

Operator

i) Higher Secondary/Senior Secondary School Certificate (10+2).

ii) Operation of Alpha-comp, Prototype setting and knowledge of developing.

Laboratory Attendant : (Physics/Zoology)

Should have passed Matriculation or an equivalent examination with Science subjects.

Should have worked in a laboratory.

Helper

Experienced persons having attained the knowledge of Indian Dishes in particular and Western Dishes in general.

Special/Desirable Qualifications

Professorship in Zoology

Specialization in any one of the following :

1. Entomology (Insect Biochemistry)
2. Comparative Animal Physiology (Muscle Histophysiology)
3. Developmental Biology (Experimental Embryology).

Professorship in Economics

Specialisation for one post

Preference will be given to a scholar who has specialization in Economic Theory, International Economics or Monetary Economics.

Readership in Zoology

Specialization in any one of the following:

Genetics, Molecular Biology or Insect Physiology.

Readership in Hindi : (Main Campus)

Specialization in Medieval literature.

Readership in Linguistics

Specialisation in either Psycholinguistics (upto date knowledge of Transformational Generative Grammer).

OR

Experimental Phonetics (Desirable knowledge of Speech Synthesis/Speech Therapy).

Readership in History

First Post

Specialization in British/West European History with knowledge of one West European language other than English.

Second Post

Specialization in Russian/East European History with knowledge of Russian or at least one East European language.

Third Post

Specialization in ancient/medieval history and culture of Southern India with knowledge of at least one Southern Indian Language.

Readership in Political Science

Political Theory.

Lectureship in Philosophy

Specialisation in one of the following:

Phenomenology and Existentialism/Aesthetics/Social/Philosophy/Indian Philosophical Classics / Western Philosophical Classics.

Lectureship in Education

At least 2nd class Master's degree in any one of the following subjects

English/History/Philosophy / Sociology/psychology in addition to the essential qualifications.

Lectureship in Oriya

Linguistics and Language teaching desirable.

Lectureship in Sociology

Specialization in Research Methods and Statistical and survey techniques.

Lectureship in Political Science

Indian Politics/Comparative Politics.

Lectureship in Mathematics

(Permanent post)

Specialisation in Probability Theory.

Research Associate in Zoology

Specialisation in any one of the following

Cell biology, Endocrinology, Entomology, Fish Biology, Animal Ecology, Developmental Biology, Histochemistry, Animal Behaviour.

Research Associate in Chinese

Proficiency in Chinese Language. Experience in Research.

Senior Programmer

(a) Experience of participation in training programmes in computer-related disciplines.

(b) Intensive experience in System Programming on a Third Generation Computer System.

Junior Programmers

(a) Experience of participation in training programmes in Computer-related disciplines, and

(b) Knowledge of an assembly languages.

Console Operator

Knowledge of the elements of Computer Programming.

Technical Assistant (Botany)

Repair of Electronic Instruments/Refrigeration/Photography.

Graphic Arts Centre

Senior Technical Assistant

Preference will be given to candidates having B.Sc. degree with Physics & Chemistry.

Dark Room Technician

Preference will be given to candidates who have certificate from a recognised Institute in Graphic Arts or Photography.

The prescribed application form can be had from the Information Section of the University either personally or by sending a self addressed envelope (size 13 cm. x 28 cm.) with postage stamps worth **Rs. 2.90** p.

The candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Applications **(separate for each post)** accompanied by attested copies of Degrees, other certificates, marksheets, published research articles, *etc.* should be addressed to the Registrar. However, for the posts marked asterisk* application should be sent directly to the Head of the Department concerned. *The last date prescribed for receipt* of the applications is **13th February, 1982.**

Note: 1. It will be open to the University to consider the names of suitable candidates for teaching posts who may not have applied. **Relaxation of any of the qualifications may be made in exceptional cases, in respect of all teaching posts on the recommendation of the Selection Committee.**

2. **Canvassing in any form by or on behalf of the candidates will disqualify.**

3. **Candidates from outside Delhi, for teaching posts only,** called for interview will be paid to and fro single second *class rail fare.*

4. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

REGISTRAR

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

Applications are invited for filling up the post of Professor, Professor-cum-Directors and Research *Associates in various Departments in the prescribed* form obtainable on payment of Rs. 5/- to the Registrar, Annamalai University, *Annamalainagar 608 002 by Cash/Money Order/Postal Order (Not refundable).* Completed application forms (with five additional copies) should reach the Registrar on or before **22.2.1982**. The envelope containing the application should be *superscribed as "Application for the post of............".*

Sl. No.	Name of the Post	Number of Post
1.	Professor of Statistics	ONE
2.	Professor & Director for the Indian Bank Chair in the Agricultural Economics	ONE
3.	Professor-cum-Director for the State Bank of India Chair *in Rural Development*	ONE
4.	Research Associate for the Indian Bank Chair in Agricultural Economics	ONE
5.	Research Associate for the State Bank of India Chair in Rural Development	ONE

Scale of Pay for the Posts of Sl. Nos. 1 to 3

Rs. 1500-60-1800-100- 2000- 125/2-2500 with usual allowances.

Scale of Pay for the post of *Sl. Nos.* 4 &5)

Rs. 800/- p.m. (consolidated).

Qualification

(For Sl. No. 1)

Persons possessing good academic Record with a Doctoral Degree.

He should be an eminent scholar with published work of High quality and actively engaged in research. Ten years experience of post-graduate teaching and research experience. Experience of guiding research at Doctoral level.

Or

An outstanding scholar with established reputation who has made significant contribution in knowledge.

Qualification for the post of Sl. No. 2

Educational Qualification

(1) M.Sc. (Ag.) Degree in Agricultural Economics with First Class and;

(2) Ph.D. Degree in Agricultural Economics.

Experience

(1) About 10 years of experience of teaching and research in the field of Agricultural Economics in a University or *Institution of repute in India* or abroad.

2. Experience of formulating and implementing project research preferably in the area of rural financing or farm management and allied subjects like Dairy Farming, Poultry Sheep *reaching, etc.*

Qualification for Sl. No. 3

Essential

M.A. Degree in Economics with First Class or at least B+grade (with *55% marks).*

Or

M.A. Degree in Rural Development with First Class.

Or

Post-Graduate Qualifications in Agricultural Economics with First Class.

Desirable

Ph.D. Degree in Economics or Agricultural Economics with specialisation in Rural Development or Rural Planning.

Persons of eminence or high attainments in the related fields of rural development will be preferred and qualifications may be relaxed in their case.

Qualification for Sl. No. 4

Essential

A post-graduate degree in the respective subject at least B+Grade (55% marks) in Economics, or Rural Development or *Agricultural* Economics.

Desirable

Ph.D. Degree *in* Economics or Rural Development.

Qualification for Sl. No. 5

M.A. Degree in Economics *with at* least a High Second Class.

Or

M.Sc. (Ag) in Agricultural Economics with First Class.

Research Experience

(a) About 3 years experience of Research in the field of Agricultural Economics.

(b) *Some experience of field work* in the collection and processing of data pertaining to *Agricultural* problems.

For posts 2 and 3, higher start will be given for experienced hands

Age Limit

For the post of Sl. No. 2 and 3

Preferably between 45 and 55 years.

For the post of Sl. No. 4&5

Between 25 and 35 years

Conditions of Service

For *Sl.* No. 3

The appointment will be for 5 years in the first instance.

For Sl. No. 4 &5

The appointment is purely temporary but likely to be continued for a period of 2 years.

E. Thangavelu
REGISTRAR I/c

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 3/82

Applications are invited for 5 posts of Research *Engineers 'B'* and 'A' in the Advanced Centre *for Electronic* Systems of the Electrical Engineering Department in the *following scales:—*

Research Engineer 'B' : Rs. 1100-50-1600.

Research Engineer 'A' : Rs. 700-40-900-EB-40-1100-50-1300.

The selected candidates will be working on sponsored research and development projects, assigned to them from time to time. Presently, the Centre is engaged in projects in the areas of fibre optics *communication, radar* clutter, ELF Communication, Digital Signal and Image Processing, *High* precision Instrumentation for signal averaging and microprocessor based signal processing. These projects are currently sponsored by Ministry of Defence, DST and Electronics Commission.

Qualifications

(a) Essential: The applicants must have First Class Bachelor's degree in electrical engineering with good academic record and specialisation in any of the following areas of Electronics and Communication:

- (i) Design of digital subsystems and interface to computers; Microprocessor and related software.
- (ii) Electronic circuit design—digital, linear and RF.
- (iii) Signal processing.

(B) Desirable: A Master's degree in Electrical Engineering with specialisation in Electronics and Communication shall be preferred.

Depending on their qualifications and experience, the selected candidates may be offered any of the two positions, mentioned above.

The posts are contractual for an initial period of three years which may further be extended by another three years. Research Engineers after satisfactory completion of six years of continuous contractual service would become eligible for consideration for permanent positions of Research Engineers in the Institute.

Residential housing, when available, is provided on the Campus. The Campus facilities include primary and higher secondary schools, a health centre and a shopping centre.

All the appointments will be on contract. Besides pay, posts carry allowances according to Institute rules which at present correspond to those admissible to Central Government employees stationed at Kanpur. Higher initial pay is admissible to especially qualified and deserving candidates. Candidates called for interview will be paid second class railway fare for travel inside India from the place of duty to Kanpur and back by the shortest route.

Two posts will be reserved for SC/ST candidates. In the event of non-availability of SC/ST candidates, the reserved posts would be treated as dereserved.

Special consideration will be given to disabled persons, possessing the requisite qualifications and whose handicap will in no way be impediment to their assigned duties.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size. Applications should be accompanied by a postal order for **Rs. 7 50 (Rs. 1 87 for** SC/ST candidates.)

Applicants who are employed in a Government/Semi-Government organisation or Institute, should send their applications through proper channel, else they will be required to produce a 'NO OBJECTION CERTIFICATE' from their employers at the time of interview.

Persons abroad may apply on plain paper (three copies) including an account of their academic and professional records and reprints of publications, fields of specialisation etc. They should also give names of atleast three persons who are intimately acquainted with their academic activities and from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, I.I.T. Post Office, Kanpur-208016 **on or before February 28, 1982.**

JAWAHARLAL NEHRU UNIVERSITY

NEW MEHRAULI ROAD NEW DELHI-110067

Advt. No. Aca. III/2/82

Applications are invited for the post of Assistant Professor (leave vacancy) in the Centre for Historical Studies, School of Social Sciences, of the University in the scale of pay of **Rs. 700-40-1100-50-1600**. The tenability of the post is upto **5.1.1984**.

Essential Qualifications

- (a) Consistently good academic record with at least high 2nd class Master's degree in Medieval History or its equivalent qualification from an Indian/Foreign University; and
- (b) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

Specialisation in Economic History especially Medieval Trade and Commerce.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable a person possessing a consistently a good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments, until he fulfils these requirements.

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IN THIS ISSUE

The Humanities and Professional Education 152
Re-Evaluation : Some Academic Issues 154

Convocation

Education: An instrument of socio-economic development and change 155

Campus News

Seminar on history and *characteristics of Puratan* Bangla Gan 158
Bihar finalises 3-year degree course structure 158
Golden Jubilee complex at Agra 159
National convention on environmental engineering 160

Agriculture

World Bank President at HAU 161
Four new wheat varieties released by IARI 162
Rice research at PAU 162

Science & Technology

National seminar on minerals & ecology 163
Hydro energy centre at Roorkee 163
Research in Progress 165
Theses of the Month 167
Classified Advertisements 171

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

Interview of the Month

The Editor met Prof. G.S. Marwaha, Director, Indian School of Mines, Dhanbad and President of the Association of Indian Universities for the year 1981-82. Given below is a record of the questions and answers.

1. **Mr. President, This is a new feature we propose to introduce in University News. University News is fortunate that it is able to get the President of AIU to do the first of this. Before we go on would you kindly give us your reactions to this new feature?**

   I think that this new feature of publishing interviews would serve a good purpose by bringing the views of the diverse people who matter, to the general notice of the academic community. All that I would like to suggest for the consideration of University News is that the selection of interviewees should be so made that the views of all sectors of the academic community get an opportunity to be aired.

   May I wish the venture every success.

2. **Mr. President, I have had some personal knowledge of your penchant for administration. Drawing upon your rich experience can you tell University News whether in your opinion University administrations generally are able to provide the necessary back-up for the faculty and the students and in the efficient management of the resources towards meeting the objectives of the University?**

   My experience of University administration is restricted to Indian School of Mines which, being a small-size limited-sector technical university, does not face the problems confronting the larger universities. My general impression however is that university administrations are not in a position to provide the needed backup service for the faculty and the students. Management of resources also is often deficient.

3. **If your answer is in the negative, what in your opinion needs to be done to improve matters?**

   The first remedy is to appoint only suitable and efficient people to administrative posts and assignments. In this context the practice of appointing teachers to these assignments needs to be reviewed. Thus, if a person is a good teacher it doesn't follow that he would make a good Registrar or administrator. Selection to administrative assignments should be made strictly on consideration on merits and competency and not to provide promotional opportunities to teachers or who feel stagnant. The second need is that persons who are appointed to administrative posts, are properly trained for the work which is placed under their charge. It is also necessary to monitor all administrative work, just as it is important to monitor teaching effort.

4. **Mr. President, do you think that the governments both at the State level and at the Centre have a healthy regard for the Universities and the University system?**

   Not generally.

5. **If not, what in your opinion needs to be done?**

   The answer to this question cannot be a simple one. The foremost requirement in my opinion, however, is that the universities must first put their own houses in order, first, by being more sincere and committed in their work; secondly, by bringing objectivity and fairness into their decision-making; thirdly, by resisting undue pressures and unhealthy pulls, generally by better management of the available resources. It is only when the internal credibility of the system improves

(Contd. on page 153)

The Humanities and Professional Education

A. P. Trivedi[*]
S. C. Mathur[*]

What is being debated these days with great energy and much anxious concern by nearly everybody who is associated with the task of determining the curricula of undergraduate education in a professional institution, is a large question about the state and prospects of the Humanities. The Humanities, according to Douglas Bush, have been more or less in a plight not because they are themselves weak but because they have to contend with man's resistance to higher values than his own. Administrators and people at the helm of affairs, while offering their lip sympathy, cherish the solid and tangible virtues of the natural and physical sciences and look upon the humanities as a luxury. The humanities suffer from the drawback that they do not lend themselves to statistical methods of evaluation. You cannot demonstrate with graphs or charts that a certain individual, through reacting to a piece of literature, music or fine arts, became a person of richer moral and imaginative insight, of finer wisdom and discrimination and stability. The fact is that the Humanities are not a luxury; they are the most practical of necessities if men and women are to become fully human.

The controversial and contradictory claims of scientists and humanists, of specialists and non-specialists are perhaps irrelevant to the real issue which liberal education attempts to deal with. At the moment, it would suffice to say that we must conceive of liberal education chiefly as an alloy of all good education—it may be in agriculture or business, an engineering or some other professional subjects. Even the most hard-boiled specialist would never want his student to be ignorant about the live issues of the day nor aware of his cultural heritage.

The emphasis on the teaching of the Humanities, then, is basically related to the plea to educate young men and women in such ways as to enable them to respond with sensitivity and intelligence to a world which is characterised by pervasive and tumultuous change, the change that swept through the whole contemporary civilization and has altered the life of nearly every person. There has been unprecedented increase in our knowledge today but, unfortunately, it has not yet produced anywhere, in corresponding magnitude, wisdom necessary for assimilation and adaptations. There has come into being a lag between the circumstances of life in which men and women must live and their inner preparation to do so wisely and effectively.

Changes in the nature and pace of modern technology continue to precipitate new problems with which liberal education must cope in its attempt to relate man to his universe. The greatest challenge that man faces today is man himself, his inner doubts, prejudices and preconceptions. If we see improvements in all spheres of life, we also see, in corresponding degrees, an increase in meanness and meagreness. What we need most urgently, then, in today's world, is direction and orientation. Therefore, whenever we strive to increase our knowledge, we must not forget to make our behaviour worthy of that knowledge. For this a mere understanding of the facts of our existence is not enough. An increased awareness of humanistic goals and values and moral sensitivity are called for. Some time we hear of the criticism made in some quarters that the teaching of the humanities is incompatible with the courses in sciences and engineering. But if we make a closer examination of the issue, it would not be difficult to show how unfounded and unprofitable such a criticism is. It was in the nineteenth century that some people saw the antithesis between science and humanism; but later on, it was found to be false and mischievous. It seems that the same has been replaced by another antithesis in the twentieth century between liberal education and specialisation. If we could rise above the departmental isolationism and vested interests of separate subjects, it is possible to see reasons why we should not believe in such an antithesis. A disturbing trend in the field of technical education today is the over-emphasis on professionally relevant courses with the result that even in institutions with full-fledged Humanities and Social Sciences Departments there is skeletal humanistic content in the various courses being offered to the students. Philosophy and History which, together with Literature once comprised the essential humanistics, have very little place in the Humanities and Social Sciences scheme today. The courses devised from the career point of view only expose the students to a distorted view of what life has in store for them. The Humanities are, in our view, the best preparation for life in all its dimensions and complexity.

The development of science has led to an inevitable decline of religion and, therefore, most young people now get their only or chief understanding of man's moral and religious quest through liberal education. The young people of today feel adrift on an uncharted sea and they need a sense of direction and purpose. Liberal education can provide that anchor and support and give them hope and confidence to face the challenges of life with vigour and vitality.

When we talk of the Humanistic philosophy in liberal learning, we envisage it to create a milieu in which the speciality can develop its fullest possibilities, and to create that balance and background which can improve the specialist's pursuit of creative activity. The University is an institution where intensive as well as extensive studies can be undertaken because different disciplines co-exist and the narrowing of academic areas for the purpose of specialisation need not result in intellectual isolation and estrangement among disciplines. The basic idea behind inter-disciplinary approach is, therefore, interdependence or unity of knowledge and the equal importance of the Humanities, Social Sciences and Natural Sciences for training of the mind. The approaches of the humanist and specialist, it seems only reasonable to admit, are more complementary than contradictory.

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[*] *Department of Humanities & Social Sciences, University of Roorkee.*

The need of planning special courses for teaching of the humanities effectively springs mainly from the conviction that liberal learning is at its centre a process by which men come to understand themselves and their own destinies through understanding their identity with and differences from human beings in other cultures and societies. The central aim of the teaching of the humanities is to free and enlarge the mind and spirit of man. It enables him to rediscover in himself a nobler and larger aspect and to choose in freedom his values and goals.

The humanities expand a man's horizon by freeing his intellect and help him to breakthrough the crust of preconception, and thus lead the emancipated person toward an affinity for all that is human. In doing this, they develop in him an attitude to look deeply into his own society, to see it as a whole, and to see it in relation to all human endeavour. Viewed thus, the humanistic education is a dynamic that animates the intellectual community in its entirety. It is not something that a man can inherit or accept passively as the gift of a free society. It is a creative process that must take place within the individual. It is continuously and actively liberating. □

Interview of the Month

(*Contd. from page* 151)

that we can expect the Governments or the public to have a healthy regard for us.

6. **Could you, for the benefit of the readers of University News, identify some of the unusual and strong areas in the activities of the Indian School of Mines, of which you are the Director?**

The strongest point of Indian School of Mines is its very close interaction with the industry that it serves and therefore our good credibility. We get a large number of guest lecturers and examiners from the industry. and also considerable representation from the industry on our Boards of Courses and Studies, and other academic bodies. Whenever in-campus interviews are held, feed-backs are immediately sought. This helps us to identify our strengths and weakness. Because of our small size, we can also move fast to remedy the identified weakness.

Being nearer the 'scene of action', we also are better aware of the day-to-day problems, both technical and managerial faced by the industry. This awareness and interest leads to our research activity getting a strong orientation to live problems. This has enabled us to draw sizable funds from the industry, through testing and consultancy, and also through sponsored research. Another measure of the appreciation of the industry. for this close interaction, is the establishment (through endowment or otherwise) of several student scholarships and prizes. We also have a research endowment. In addition, currently the school enjoys four 'donated' chairs in newly developing areas.

Another strength, of course, is the very high quality of students that we have, and the generally high competency and commitment of our faculty members. The small size of the institute is also of helps, particularly in the better management of resources. Firmness of purpose and sincerity of action has also played dividends.

7. **Mr. President, what in your opinion are the strong points of the Association of Indian Universities?**

The strongest point of AIU is its voluntary and independent character. The Association also provides a good open platform for debating issues of national importance as far as the higher educational scene is concerned.

Its traditional management of inter-university sports provides the Association with a consistent visibility, and some of its research publications are also making an impact. The University Hand-book and some other publications being regularly brought out by the Association also provide a well appreciated service.

Another useful activity being performed by AIU is that in the field of equivalence.

8. **In what directions should the AIU now move to make it a more viable organisation?**

The Association should, I feel, strengthen its researches into the problems facing the universities, and develop a strong 'extension' activity. It should also become more active in protecting the position of the Vice-Chancellors which is being badly undermined through the action not only of the politicians and the State Governments, but also those of the teachers, the students and often the karamcharis. It is necessary to ensure security of their tenure and safety to their persons, and to give them real authority to match the responsibility. Unless the Vice-Chancellors are enabled to function in an objective manner, the university system has little chance to improve its performance and develop a better credibility. This is a matter of the utmost importance.

11-2-1982 **—Editor**

Re-Evaluation : Some Academic Issues

V. Natarajan*
Asha Arora**

Introduction

Re-evaluation of answer scripts is a very recent development in examinations in higher education even though it was possible earlier for the candidates at various universities, to get their answer books scrutinized which meant both checking up the total of the marks and also seeing that no portion of the answer book of the candidate was left unvalued by the examiner. However, the origin of re-evaluation can be traced to the functions and powers of the Results Committee that empowers Boards of Examiners to get the answer books in any paper or subject revalued by the same examiner or by any other examiner when it finds that the result in this particular paper or subject is much too low or too high in comparison with the results of the same students in other papers of the examination.

Need

The question now is why this facility of re-evaluation is permitted by some universities and is being demanded by students in other universities. There are several reasons, some of which are:

Erratic valuation: It happens when several examiners are involved and there are too many scripts to be evaluated in a short time and also when answers to questions are long essays. Equally competent examiners looking into the same student's answer award different marks and worse still the same examiner gives the different marks on different occasions. Hortog and Rhodes, Dr Harper and Misra have amply demonstrated this in the past by their research studies while the author tried to demonstrate the unreliability of marking through An Exercise on Marking. Hortog and Rhodes study revealed that the consistency of marking in most public examinations was extremely low. In this glorious Study of Ninety marking ten, ninety examiners were asked to mark ten History scripts and variations were analysed and the inconsistency in marking brought out. Through an exercise given to 7000 University teachers it has been demonstrated that a student's answer received anything between 0/10 to 9/10 and the mean mark was 5.80 S.D.=2.80 Reliability almost 0 and S.E.=S.D.=2. 80 marks. The subjectivity in judgement in marking is predominent in the case of essay marking, less pronounced it is in the case of short answers marking and almost non-existent in the case of objective item answers marking.

Strict valuation

This is again a phenomenon seen to occur when several examiners mark and their standards of marking differ. Some examiners are lenient, while others are very strict. If the quality of answer scripts marked by different examiners is made to remain more or less equal (this is possible by 'randomisation' of answer scripts before distribution to different examiners), then the variation in marking (maximum, minimum, range of marks, mean, S.D.) can be attributed to individual examiners. The best answer script at the hands of a lenient examiner may get 90% while the same script at the hands of a strict examiner may get 75%. If the quality of answer books to various examiners is controlled by randomisation, then one examiner's 90% (highest) is another's 75%. It will be more meaningful to accept the rank order of the scripts as judged by different examiners and then *Scaling* can be done to make these marks comparable to each other.

Examiner I	Examiner II
Maximum 90	Maximum 75
Minimum 24	Minimum 12
Range 24-90	Range 12-75
Mean 56	Mean 43
S.D. 15	S.D. 10

It is possible to scale their marks on

1. Scaling on rank order
2. Scaling the 'means'
3. Scaling Means/S.D

Indifferent evaluation/victimisation

Indifferent evaluation on the part of examiners can be checked by having a random check of the scripts examined by him by the Head Examiner or a group of checking examiners.

Victimisation can be ruled out as the scripts now a-days bear only fictitious roll numbers. But in the case of residential universities, such a procedure being not followed, victimisation cannot be ruled out altogether.

The need arises from past and present experiences in different universities where there have been increasing number of cases wherein marks of candidates (even in Maths paper), re-evaluation increased their marks by 200 to 400% 10 marks becoming 37 (a pass) have been noticed not to speak of 'borderline cases'—both border lines between Pass/fail and II/I divisions. Examiners differ, (teachers from university departments/teachers from colleges/outsiders) the quality of answers also differs particularly at the P.G. level, there is variation in the quantum of reading (references) revealed in the quality of answers. To some extent, inter-collegiate rivalry and boosting up of marks of their own candidates compared to those outside are also the reasons. To deal with the concept of re-evaluation, one has to have a theoretical base with sources of error in marks (evaluation).

Sources of Error in marking

There are several sources of error in Marking.

(*Contd. on page* 156)

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*Project Officer (Exam.), AIU

**Research Asstt., AIU.

Convocation

Education : An instrument of socio-economic development and change

If one has to take a look at the expansion of our educational system, we have now more than 120 Universities, 4500 affiliated Colleges, 40,000 Secondary and 6,00,000 Elementary Schools. We have nearly 2 lakh teachers in our institutions of higher learning dealing with about 21 lakh undergraduates and 2.5 lakh postgraduates. We have the third largest scientific manpower in the world and the top-level of our trained manpower is comparable to the best in the leading countries of the world. It is undoubtedly, no small achievement since our Independence. However, if we have to make a critical appraisal, the educational system which we inherited from the British has not undergone any radical change to suit the cultural tradition, social objectives and economic needs of our people. The unemployment backlog is mounting up day by day. Many of our first degree courses organised on traditional lines are mostly irrelevant to the present day needs of our country.

The most important and urgent reform needed in education today is to transform it, to reorient it so that it becomes related to the life, needs and aspirations of the urban and rural community and serve as an instrument of socio-economic development and change within the existing educational framework. The functions of the Universities have to be reoriented so that in addition to fulfilling their traditional role, they can also respond to the needs of the community. They will have to assume the responsibility of social transformation and economic modernisation. The universities will have to restructure the existing conventional courses at the first degree level so as to make them relevant to the needs of the region concerned.

As it is already known, the Sixth Plan framework calls for efforts to achieve beneficial linkages among education, employment and economic development. The educational programmes need, therefore, to be related to emerging occupational patterns and provided, not only for adequate levels of pre-employment knowledge and skills suited to different vocations but also further on-the-job learning and improvement of the educated manpower.

A large number of graduates, particularly in Arts and Science require training for short-term periods to prepare them for different vocations. In view of this, it is necessary to start post-graduate level diploma courses in such vocational subjects where there is demand for trained manpower in different sectors of economy. Similarly, a number of diploma courses could be started beyond Master's degree in such subjects as Energy Studies, Space Sciences, Computer Sciences, Environmental Management and Resource Development areas etc. Such courses organised in close collaboration with R &D Institutions and Industries as well as under agencies will help in developing beneficial linkages and increase the employability of such trained manpower. The universities should break their conventional primary role of limiting their activity to acquire, preserve and disseminate knowledge and be able to inculcate new values and attitudes, imbuing students and teachers with a sense of social responsibility and enabling them to use the knowledge and skills acquired by them for the benefit of society. This could be achieved through taking up programmes of continuing education and extension as an activity as important as teaching and research. Extension should not be looked upon merely as a welfare activity for the social groups, but as a process of interaction with the society leading to valuable learning experiences and as a means of mankng higher education relevant to the needs of the society and oriented towards a solution of existing problems.

Special care is to be taken to organise programmes for scheduled castes/tribes, women and for other weaker sections of the society through extension work. The non-formal nature of continuing education enables it to evolve a process of learning which is radically different from formal education and helps to achieve integration of knowledge with life. Formal education has contributed in widening social disparities. Society needs a process of education which will help in bridging these disparities. Continuing education should therefore, be organised in the perspective of the society of the future.

Scientific research is crucial to national development. The role of university research in the total spectrum of the National Research and Development is equally crucial. University research efforts produce not only research output but also high level trained manpower. Pandit Jawaharlal Nehru once said "I think, a university should have obviously an acadmic atmosphere. An academic atmosphere requires research work to be done there. Apart from the utility of research, doing research creates an atmosphere which goes to the student, develops in him a certain element of quiet, objective study." The university research in terms of results of research is the most economical of all because in universities research is largely contributed by research students. The yearly expenditure per research student in a university is much less than expenditure per research scientist in research institutions divorced from teaching. It is well recognised that a most reliable index of the state of scientific progress and general tone of scientific work in a country is the quantum and quality of scientific research in the universities of that country.

The University Grants Commission has funded nearly 1600 research projects in Sciences over the past six years since the beginning of the Fifth Plan at a cost of about 12 crores of rupees. Nearly 200 of these projects have already been completed. Apart from basic sciences, the projects cover applied fields and emerging areas like Environment, Ecology, Earth sciences and Bio-sciences. The maximum number of approved research projects are in subjects of Biological Sciences followed by Chemistry and Physics.

About 125 of the above projects have special relevance to the Environmental sciences and Ecology. Nearly a fourth of the projects have R & D value and are application-oriented. Thirty departmental research projects to the tune of over 2½ crores of rupees have also been approved by the U.G.C. for eight Universities. These projects cover Physics, Chemistry, Botany, Zoology, Geology and Mathematics.

It is good to see the achievements of the Annamalai University and the measure of its strength and competence, as indicated both by the number and quality of those who have graduated at this impressive Convocation. I am very happy to share the joy of this occasion.

Lastly, I would like to impress on you the importance and need for national integration by reminding you of what Mahatma Gandhi said once: "All those who are born in the country and claim her as their motherland, whether they be Hindu, Muslim, Parsi, Christian, Jain or Sikh are equally her children and are, therefore, united together with a bond stronger than that of blood". I would like to call upon you to rededicate your life to those things which are enduring, recognising with William James that "the great use of life is to spend it on something that will outlast it".

(Excerpts from the convocation address delivered by Dr. (Mrs.) Madhuri R. Shah, Chairman, UGC, at the Annamalai University).

Re-Evaluation : Some Academic Issues

(Continued from page 154)

Appendix B, p.35 Monograph on Grading for Universities, AIU lists some of these:

1. Subjectivity in marking
2. Biased sampling of topics
3. Biased sampling of abilities
4. Allowing a choice of questions
5. Arbitrary time limits
6. Assumption in addition of marks

Of these, subjectivity in marking accounts for a greater proportion of total error.

The error in marking is usually expressed of a Standard Error

$$S.E = S.D.\sqrt{1-\text{reliability}}$$

usually in a 100 marks paper with essay type questions only the reliability is around 40% S.E. = 80% of S.D.

S.D if a fair range of marks is used will range from 8 to 16 marks.

∴ The S. Error can be anything between 5 and 12 marks. If S.E. is 5 marks and if a student gets 35 marks, his mark can be between (35−5) and (35+5) for 2 out of every 3 examiners.

In concept of re-evaluation, this must be understood that the permissible variation between two examiners is atleast one S. Error. One of the rules of re-evaluation can be that if a script is revalued and found to be in error within one S.E. above or below, then, the *average* of the examiners can be taken as his true mark. If the difference is more than 1 S.E. this can be referred to a third examiner and any two of these within 1 S.E. variation can be accepted. This seems to be theoretically sound and practically feasible.

Methods of re-evaluation

Methods followed differ in different universities. In some, the re-evaluation is done by a single examiner and his verdict is taken to be final. In some others, the candidate is given the benefit of doubt and the maximum of the two is taken. If the difference between these examiners is more than 10 (or any other adhoc number) the script is usually referred to a third examiner whose marking is taken to be final. There is a snag in this approach if suitable safeguards are not built. It depends to a very large extent on the nature of the third examiner; if he is strict, student is at a disadvantage; if lenient, he is at an advantage; if he is completely external (it usually happens this way) he must be sent atleast 10 other answer books evaluated by the first examiner to give him a guideline into the standards of marking. One other important question is whether re-evaluation must operate in both directions, sometimes the mark is increased; sometimes decreased. It is the same issue as with grace marks.

Thus the whole concept of re-evaluation hinges round the concept of error in marking and to the extent this is scientifically and statistically studied, the concept of re-evaluation will be sound. Rules/Regulations regarding re-evaluation must then reflect such considerations rather than being adhoc. □

UGC chief heads panel to study working of central universities

A six-member committee headed by University Grants Commission Chairman Madhuri R. Shah will look into working of the Central Universities.

Besides Dr. Madhuri Shah, the other members of the Inquiry Committee are: Dr. G. Ram Reddy, Vice-Chancellor, Osmania University, Prof. Rais Ahmed (formerly Vice-Chancellor, Kashmir University), Department of Physics, Aligarh Muslim University, Prof. (Mrs.) Ashima Chatterjee, Department of Chemistry, Calcutta University, Dr. Ramesh Mohan, Director, Central Institute of English and Foreign Languages, Hyderabad and Mr. R. K. Chhabra, Secretary, UGC (Member Secretary).

The terms of reference of the Committee are: (a) To examine whether the Central Universities are fulfilling the objectives set for them in their Acts and Statutes; (b) To examine the general State of discipline in the Central Universities, causes of periodic disturbances in the campuses and remedial action therefor; (c) To examine the adequacy of the machinery in the Central Universities to deal with the grievances of students, teachers and the administrative staff and suggest measures for strengthening corporate life in these universities; (d) To examine the desirability of evolving a code of conduct for political parties and to set limits to their involvement in the University affairs; and (e) To suggest such other measures of reform as are necessary for the efficient functioning of Central Universities and promoting an academic atmosphere conducive to study and scholarship on the campuses.

A new series of *Bulletin*

The Socio-Economic Research Institute, Calcutta, has launched a new series of Bulletin of the Institute. The Chief Editors of the Bulletin are Shri Bhabatosh Datta and Dr. Satyendra Nath Sen, former Vice-Chancellor of Calcutta University.

The first issue of the new series of Bulletin of the Institute contains the proceedings of the Seminar on Economic writings in Bengali, 1818-1947, according to a letter received. The seminar itself was organised by the Institute in collaboration with the Indian Statistical Institute, ICSSR (Eastern Regional Centre), Departments of Economics of the Universities of Calcutta, Jadavpur and Rabindra Bharati.

Orders may be placed with the Joint Secretary, Socio-Economic Research Institute, C-19, College Street Market, Calcutta-700 007. Subscription Rate: Single Copy: Rs. 10/- or $1.50. Annual: Rs. 15 or $2.00.

Apprentices to get more stipend

About 1.35 lakh apprentice technicians and engineers will substantially benefit by the Government decision to increase the rate of stipends.

According to a notification issued by the Union Labour Ministry, engineering graduates will now get Rs. 450 (for post institutional training) as against Rs. 260 as at present and the diploma holders Rs. 320 (for post institutional training) as against Rs. 180 as at present.

In the first year of their training, the trade apprentices will now get Rs. 230 instead of Rs 130 by way of stipend. In the second, third and fourth year the rates of payments will be Rs. 260, Rs. 300 and Rs. 350 respectively. At present a trade apprentice gets Rs. 200 in the fourth year of the training.

Another gain to those doing apprenticeship is that the period of training already undergone by candidates in an institution recognised by the Central Apprenticeship Council shall now be taken into account for the purpose of determining the rate of stipend.

Personal

1. **Mr. B. Pratap Reddy has been appointed Vice-Chancellor of Andhra Pradesh Agricultural University.**
2. **Prof. R. Subbayyan has been appointed Vice-Chancellor of Bharatiyar University, Coimbatore.**
3. **Prof. P.S. Mani Sundaram has been appointed Vice-Chancellor of Bharatidasan University, Tiruchi.**
4. **Prof. Allauddin Khan has been appointed Vice-Chancellor of the Agricultural University being set up at Sopore (J &K).**
5. **Dr. N.A. Karim has been appointed Pro-Vice-Chancellor of the University of Kerala.**
6. **Dr. R.P. Agarwal has been appointed Pro-Vice-Chancellor of the Lucknow University.**
7. **Mr. A. N. Haksar, has been appointed Chairman of the Indian School of Mines, Dhanbad, for a period of five years.**
8. **Prof. D. D. Narula has been appointed Member-Secretary of the Indian Council of Social Science Research.**
9. **Prof. Bakhshish Singh, Director, Correspondence Courses, Punjabi University, is to be awarded by Athabasca University, Edmonton, Canada, the Honorary Doctorate degree for his enormous contribution to Distance Education.**
10. **Dr. T. C. Rao, Professor in the Department of Chemistry, Fuels and Metallurgy, at the Indian School of Mines, Dhanbad, was one of the six scientists who were awarded the national mineral awards for the year 1978-79 in recognition of his work in different disciplines of Earth Sciences.**

Campus News

Seminar on History and characteristics of Puratan Bangla Gan

(From Our Correspondent)

A two-day seminar & lecture-recital on the 'History & Characteristics of *Puratan Bangla Gan*' was held on January 11 and 12, 1982 under the auspices of Burdwan University and its Padmaja Naidu College of Music in the campus at Burdwan. Several eminent scholars and distinguished musicians participated. The inaugural meeting and the seminar sessions were presided over by Dr. Ramaranjan Mukherji, Burdwan's Vice Chancellor and Sri Rajyeswar Mitra, the eminent musicologist and historian of Indian music. It was for the first time that such an unorthodox academic venture was organised in these parts of the country, creating as it did quite a few ripples in our academic-musical world.

In her keynote address entitled 'The Theoretical Problematic of *Puratan Bangla Gan*', Sm. Jayasri Banerjee 'Samgit-Saraswati', Secretary & (Offtg) Principal of Padmaja Naidu College of Misic, and the organiser of the Seminar, elucidated theoretically and historically the critical universe of the given subject, highlighted the urgent need to tackle the long standing contretemps between theory and practice in Indian classical music in general and in *Bangla Gan* in particular, and called for an immediate adoption of a considered policy to preserve and promote *Puratan Bangla Gan* in all its rich complexities.

Several scholars at the Seminar sessions underlined the need for creatively drawing upon the many-splendoured store of *Puratan Bangla Gan* to enrich and enliven the musical enterprises of today's Bengal. The lecture-recitals, presented at Rabindra-Bhavan, was a treat, bringing out in bold relief the glittering richness and the high-order complexities of *Puratan Bangla Gan.*

A new kind of academic-cum-musical exercise which is not very popular in this country, the said Seminar & Lecture Recital on *Puratan Bangla Gan* adopted *two* Resolutions :

Referring to Rabindranath Tagore's 1936 statement that the Education Department in this country had not been able to recognise *samgit* as a dignified and creative *vidya*, the *first* resolution noted that neither the Government of India nor the State Government of West Bengal nor, generally speaking, the Universities of India had yet formulated a clear-cut, well-considered and positive policy in regard to higher education and research in music, and urged the authorities concerned to take necessary steps for the development of *Music* as a rational-sceptical discipline at the academy.

Referring to the present practice of the radio and television which treat old Bengali songs as second-class music under the rubric *Puratani*, and underlining the many-sided richness and high order complexities of old Bengali songs, the *second* resolution urged the concerned authorities to restore *Puratan Bangla Gan* to full franchise in the media and to do whatever is necessary for their preservation, promotion and cultivation.

Bihar finalises 3-year degree course structure

The Bihar Inter-University Board has finalised the structure of three-year degree course to be implemented in the universities under ten-plus-two-plus-three pattern of education, it is reported.

The honours course will be of three years' duration and the pass course will, for the transitional period, be of two years duration with a provision for a bridge course for one year for those who intend to prosecute further studies in the post-graduate course.

According to the proposed structure honours course teaching will start from the first year separately from the pass course. The pass course examination will be held at the end of the second year. The honours course examination will be held in two parts, i.e., part I at the end of the second year and part II at the end of third year. Students passing the honours part I examination will get a pass degree if they obtain pass marks in all the subjects but fail to obtain a minimum of 40 per cent mark in the honours subject required for prosecuting their studies in the third year.

NEHU to introduce three-year degree cousre

The North Eastern Hill University will introduce three-year degree course in the colleges under its jurisdiction with effect from the next academic year. The Pre-university course will be for two years as at present.

According to Dr B. D. Sharma, Vice Chancellor of NEHU, the new three-year degree course will be introduced in a few select colleges of Meghalaya, Nagaland and Mizoram during the academic year 1982-83. The course will be introduced gradually in all the colleges under NEHU, he added.

Dr. Sharma said that there would be no fresh admission in Post Graduate classes of NEHU for the next academic session. Instead the intending graduates having completed the two-year bridge course and special BA and BSc degree will be conferred on successful completion of the course. The special one year bridge course will continue till all the colleges under

NEHU are converted into the new three-year degree course.

The decision to introduce the three-year degree course was taken at a meeting of the Secretaries of Education and DPI's of Meghalaya, Nagaland and Mizoram held with the Vice-Chancellor in the chair. The meeting further decided to constitute a Board for Pre-University education for NEHU with a view to streamlining the entire Pre-University education including the revision of syllabi, preparation of new textbooks and improvement of various facilities of education.

Remote sensing centre at PAUT

The Government of Tamil Nadu have sanctioned Rs. 76 lakhs for setting up a Remote Sensing Centre for Tamil Nadu at the Perarignar Anna University of Technology, Madras. The work is to start this year and is to be completed in the next four years.

The Centre will provide training, consultancy and extension service to the various departments in Tamil Nadu in the field of agriculture, forestry, groundwater, oceanography, soil classification, land use, urban planning, minerals survey, cartography etc., using remote sensing techniques for survey and data collection.

The Centre will essentially be served by staff drawn from the user departments, and will be administered in general by the university through an advisory committee to be established in consultation with the Government. The Centre will be developed in close collaboration with the National Remote Sensing Agency, Secunderabad.

The Centre will be manned by a Director, assisted by eight technical members and eleven non-technical members.

Rural housing wing for Tamil Nadu at PAUT

The National Building Organisation, Government of India, has sanctioned the establishment of a Rural Housing Wing for Tamil Nadu to be located in the Perarignar Anna University of Technology, Madras. The functions of the Rural Housing Wing will be :

To promote research and use of local building materials and construction techniques and designing of village houses;

To propagate the use of improved materials and techniques;

To train and orient technical personnel employed in planning and execution of projects under the village housing project schemes;

To construct clusters of demonstration houses in selected rural locations;

To carry out any other activity connected with rural housing as may be decided from time to time.

The Vice-Chancellor will be the ex-officio Head (honorary) of the Wing. It will be administered by a Director and he will be assisted by an officer in-charge.

The National Building Organisation will provide hundred percent financial assistance to all the schemes approved by it and undertaken by the Rural Housing Wing.

Golden jubilee complex at Agra

The foundation stone of a Rs. 10 lakh Golden Jubilee Complex of Agra University was laid by Dr. (Mrs.) Madhuri R. Shah Chairman, University Grants Commission, recently.

Laying the foundation-stone, she said the concept and philosophy of university education had undergone a tremendous change and unless the universities equipped themselves to meet the aspirations and needs of the common masses they would fail miserably in their programme of leading the society.

The universities, she pleaded, should work as an agent of social change and provide leadership to the people by bridging the gap between the educated and the common man.

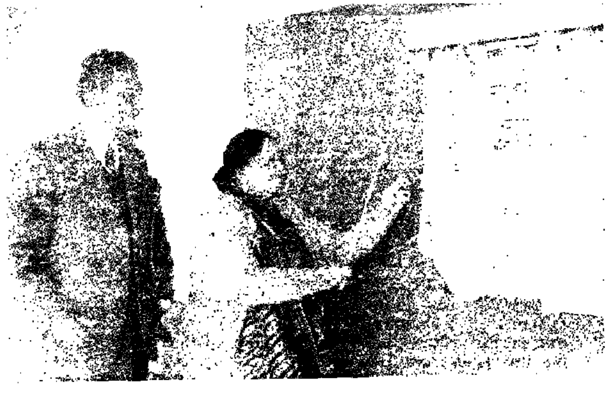
The best way of bridging the gap, she said, was to introduce correspondence courses and non-formal courses to imbibe the oneness among the people who were denied university education.

She said the universities should introduce new courses of study, like energy science, environmental studies, biophysics and computer science as the country was in shortage of talented scientists in these fields.

Referring to the role of the University Grants Commission, Dr Shah said it was not meant only for providing liberal grants but to raise the academic standards and provide meaningful content to education.

The UGC had, therefore, appointed a review committee to study the nature and feasibility of correspondence courses currently running at difference universities.

Dr. S.N. Mehrotra, Vice-Chan-



Dr. (Mrs) Madhuri R. Shah at the foundation stone laying ceremony of the golden jubilee complex of Agra University.

cellor, Agra University, said the university would provide correspondence courses, library facilities and continuous education schemes for private candidates at the complex.

The pattern of the Complex building would be on the lines of the multi-storeyed Examination Halls of the Union Public Service Commission at New Delhi. It would comprise a basement, 6 examination halls, a guest house and 8 quarters. The project, which would cost about Rs. one crore, would be executed in phases.

The University Grants Commission has agreed to sanction a non-recurring grant of Rs. 10 lakh for the project.

Besides providing facilities for University examinations, the Complex would also facilitate organisation of various competitive examinations conducted by the Union Public Service Commission, the State Public Service Commission, Railways, Banks and other employing agencies.

The Complex would also house the Institute of Correspondence and Continuing Education which would open vistas of life-long education for the citizens of Agra.

The Complex would be dedicated to the students of Agra University,

The University has also requestd for donations from Government of Uttar Pradesh, alumni and students of Agra University and the public of Agra. All donations will be duly acknowledged. The names of donors of Rs. one lakh and above would be inscribed in gold.

National convention on environmental engineering

The Eighth National Convention on Environmental Engineering was held from 18th to 21st January 1982 at the Sri Venkateswara University, Tirupati. It was sponsored by the Institution of Public Health Engineers (Calcutta) and Co-sponsored by the S.V. University (Department of Civil Engineering), the A.P. Water Pollution Control Board, and the University Grants Commission, New Delhi. The Convention was attended by the Chief Engineers of many States and research workers in the field. Two U.N.D.P. advisers also attended the Convention.

The Convention was inaugurated by Prof. M.V. Rama Sarma, Vice-Chancellor, S.V. University, and presided over by Prof. S.K. Ghosal, Adviser to the Government of West Bengal on Water Pollution. Dr. P. Pratapa Mowli, Professor of Environmental Engineering and Head of the Civil Engineering Department and Convenor of the Conference welcomed the delegates. A report on the progress made in the Department of Civil Engineering in general and in the division of Environmental Engineering in particular was presented. The items of special interest mentioned were M.Tech. Programmes with flexible system enabling the students to take courses to suit any department like Public Health Engineering, Municipal Engineering, Panchayat Raj, Pollution Control Boards etc. Facilities for full time and part-time (Evening) study were available. Sri P.K. Chatterjee, Adviser in Sanitary Engineering, U.N.D.P. spoke on the importance of prevention and control of Air and Water Pollution. A report about the activities of the Institution of Public Health Engineers was also presented.

Crash programme for teachers to qualify for M.Phil.

The Syndicate of the Madras University has decided to start a crash programme to enable teachers in affiliated colleges to qualify for the M.Phil. degree. The teachers can do the theory part of the programme in two summers and the dissertation part can be done within six months after that.

The Vice-Chancellor, Dr. M. Santappa, stated that the Government must bear the expenditure and details had to be worked out. M.Phil. is stipulated as a necessary qualification to be acquired within five years of introduction of UGC pay scale by the undergraduate department professors.

Another decision relating to the period of absence of university teachers was also taken. Accordingly, teachers going to other places for post doctoral work or on teaching assignments should not be away from the university for more than a year and in extraordinary circumstances, another year would be allowed. If they did not return in the third year, the period would be construed as unauthorised absence.

Textbooks promotion Scheme at PAUT

The Perarignar Anna University of Technology has introduced

ASSOCIATION OF INDIAN UNIVERSITIES

Deen Dayal Upadhya Marg, New Delhi-110002

Applications are invited in the prescribed form obtainable from the Secretary on payment of Rs 2/- for the following project posts which are sanctioned for the 6th Plan Period but are likely to continue :

(i) Project Officer (Rs 1500-2000 plus allowances). The person should be knowledgeable in the field of Economics of Education. He should give adequate evidence of his capability, experience and capacity for independent work.

(ii) One Research Officer (Rs 1100-1600 plus allowances) in the area of Examination reforms. Applicant should be well conversant with the different aspects of examination reforms, should have adequate experience and publications.

Application should reach the Secretary by March 1, 1982.

with effect from this year a Text Books Promotion Scheme to encourage its faculty to publish Text Books for students in Engineering and Technology.

The authors selected will be given a grant of Rs. 1500/- towards cost of typing, drawing and other related expenditure for preparing the manuscript. The amount will be released in three equal instalments.

The help rendered by the University may be suitably acknowledged in the book. No other condition is stipulated for the assistance.

Intending authors will submit their proposals to a publication committee, which will recommend suitable cases for assistance under the scheme.

Teacher training programme for SC/ST candidates at PAUT

A programme of faculty development to train candidates belonging to SC/ST is being introduced in the Perarignar Anna University of Technology, Madras from 1982-83.

Teacher trainees are proposed to be selected from among the B.E./B.Tech degree holders belonging to S.C./S.T. in the first instance. They will be provided with an opportunity to qualify for the master's degree on a part-time basis. During the period of training the candidates will be paid a stipend of Rs. 1100/- per month. On the successful completion of the training, the candidate will be appointed as a lecturer on a suitable starting scale.

The age limit will be 27 years at the time of entry as trainee.

The trainees have to sign a bond to serve the University for three years after successful completion of the training. Those discontinuing during the training period will have to pay back the total stipend amount received. If they fail to serve the University as a teacher for a minimum period of three years after the completion of the training, a sum of Rs. 10,000/- for each year of early discontinuance will have to be repaid. For unsatisfactory progress or misconduct, trainees are liable to be discontinued.

News from Agril. Varsities

World Bank President at HAU

Mr. A.W. Clausen, President of World Bank visited the Research Farm of Haryana Agricultural University (HAU), Hissar and lauded the work done by the scientists in oilseed research. Accompanied by the Vice-Chancellor, Dr. D.R. Bhumbla, Mr. Clausen visited the oilseeds section and the dryland section of the research farm. In view of the edible oil crisis all over the world the President's party was much impressed by the frost-escaping variety of mustard evolved by HAU scientists. The high-yielding variety, MH-2 of groundnut which is the future hope of the canal command areas of western Haryana attracted the visiting team's attention. Dr. D.R.Bhumbla, Vice-Chancellor, disclosed that the present emphasis in research is to develop frost and diseases resistant varieties of mustard. Dr. Bhumbla further informed that the two major constraints viz., frost and pest problem are holding back the oilseeds production in the country.

In the dryland section Mr. Clausen was shown luxuriant gram crop grown under dryland conditions and also some of the implements evolved by HAU engineers.

In the College of Animal Sciences the visiting team was shown the cross-bred animals and the research work being done on Ducks, Turkeys and Japanese quails.

Earlier Mr. Clausen and his

Scientists showing the newly envolved varieties of mustard to Mr. A. W. Clausen.

party was received by the Vice-Chancellor at the Faculty Club. Mr. Clausen had discussions with the Vice-Chancellor and other senior scientists of HAU.

Four new wheat varieties released by IARI

With the release of four new varieties of wheat developed at the Indian Agricultural Research Institute as part of its strategy to fight and contain diseases to which this crop is susceptible, scientists are confident that there will be a spurt in wheat production in the country as a whole in the very near future.

The four varieties, which have been released after due experimentation by the Central Varietal Release Committee of the Government of India, are H.B.-208 and H.S.-86, evolved at the Bhowali and Simla substations of the I.A.R.I. in the northern hills region, H.W.-517, evolved at the Wellington substation in the Nilagiri Hill areas and M.L.K.S.-11, evolved by I.A.R.I. scientists in Delhi itself.

PAU evolves wonder wheat

DWL 5023 is the name of the new miracle wheat fashioned by the scientists of the Punjab Agricultural University that gives the farmer 54 quintals of wheat from one hectare.

It is the multiliner that is immune to dreaded rusts. It is stated multiliner is a mixture of several varieties of wheat that resists rusts for long periods much longer than the earlier hybrid varieties.

Krishi gyan kendra

Union Minister for Agriculture, Rao Birendra Singh, inaugurated the Krishi Gyan Kendra Building of Haryana Agricultural University at Mohindergarh on Jan. 16, 1982. Mohindergarh is the seventh District of the State in which Haryana Agricultural University's Farmers Advisory Centre has its own building. In this building the Soil Testing Laboratory, Rest House, Committee room for Specialists and two Garages for drivers etc. have been built in the first phase of its construction. Besides, roads, lawns and other facilities have been provided. The Krishi Gayan Kendra has been built over an area of 8630 square feet at a cost of about Rs. 12.5 lakhs.

Three varieties released by HPAU

Himachal Pradesh Agricultural University, Palampur, has released two new varieties of rice and one of fodder for cultivation in the State.

The first rice variety, Himalaya-1 has been recommended for cultivation throughout the State while the other variety Himalaya-2 can be cultivated in low and mid-hill areas.

The new varieties are superior to the existing varieties on account of their high yield, greater cold tolerance, semi-dwarfness, disease resistance and early maturing quality.

The yield in the case of Himalaya-1 is 38 quintals per hectare and in that of Himalaya-2 it is 35 quintals per hectare, which is four to eight quintals more than that of traditional varieties.

The third variety released by the university, namely Nandi, is a fast-growing type of setaria grass.

Rice research at PAU

Punjab Agricultural University has decided to intensify research on rice with emphasis on hybrid rice.

Dr. Sukhdev Singh, Vice-Chancellor of the University, who returned recently from an "assessment tour" of the International Rice Research Institute (I.R.R.I.). Manila said that research on hybrid rice initiated last year at the Kapurthala station of P.A.U. had shown good results.

Dr. Sukhdev Singh said that the I.R.R.I. had raised a big "germ plasm" of rice varieties. It had 60,000 strains of rice from different countries of the world, including 20,000 from India.

Dr. Sukhdev Singh said that the university had material for hybrid rice research and only technology was needed. One expert of P.A.U. had been to China and the I.R.R.I. and received training for this purpose, he added.

AICW workshop

A six-day all-India Agricultural Information Communication Workshop was held recently at Pusa, Bihar.

In his inaugural address, the Minister for Agriculture, Bihar, emphasised the need for spreading technological knowledge among farmers and acquainting them with the same. The Indian agricultural scene is changing fast with rapid innovations in technological know-how opening up tremendous possibilities of development, he said.

Research station of BAU

It is reported that a team of senior scientists of the I.C.A.R. recently endorsed, after a site inspection, location of a Regional research Station of the Birsa Agricultural University at a village about 15 kms away from Ghatsila, Bihar. Necessary soil testing was done and irrigation potential assessed. This is the first time that an Agricultural Research Centre is being set up in this region.

The 250-acre plot of land is located in a predominantly tribal region. Rs. 1 crore would initially be needed for this ambitious project. The project is being established with financial assistance from the World Bank.

This station is one of the three proposed to be set up. The Centre would also develop 'Krishi Gyan Kendra' for imparting practical training to professional farmers.

PAU engineer wins Nehru Award

Dr. S.D. Khepar, Professor and Project Coordinator in the Department of Soil & Water Engineering of the Punjab Agricultural University, has been selected for Jawahar Lal Nehru Award for the year 1981.

The award has been instituted by the Indian Council of Agricultural Research (ICAR) for 'meritorious research work' done by a scientist for his Ph.D. degree.

Science & Technology

National seminar on minerals & ecology at ISM

A national Seminar on Minerals & Ecology' is planned to be held at Indian School of Mines, Dhanbad on 6th & 7th March, 1982. The Seminar has been sponsored jointly by the Department of Environment/Government of India, the Mining, Geological and Metallurgical Institute of India and the Indian School of Mines. A number of technical papers will be presented and the issues discussed under the following groups :

i) Land use, land degradation and land reclamation:

ii) Environmental pollution—this will include air, water and noise pollution due to mineral exploration, exploitation and beneficiation;

iii) Human environment—this will include socio-economic, occupational health, mining settlements and sanitation problems.

Hopefully, the National Seminar will throw up ideas for a suitable Plan of Action.

The Seminar is expected to be attended by senior management personnel from the mining industry, project managers and other officials concerned directly with ecological problems created by mining, members from academic institutions offering courses in applied earth sciences and mining engineering and technology, and from research organisations and Central and State Government departments dealing with minerals or environment.

Hydro energy centre at Roorkee

An International Workshop on "Hybrid Energy System for Rural Prosperity" was recently held at Roorkee University. Inaugurating the Workshop, Mr Maheshwar Dayal, Secretary, Commission on Alternative Sources of Energy, stated that three projects for development of integrated rural hybrid micro hydel systems are proposed to be set up in Himachal Pradesh and Haryana. Mr. Dayal said that the new concept being tried was to continue the energy production of different renewable resources so that economical energy production was achieved.

He also announced that the Commission was planning to set up an alternate hydro-energy centre at Roorkee University for research and development of economically viable small and low head hydro-electric systems and equipment. The proposed centre would also conduct research for development of hydropower in conjunction with other renewable resources of energy like solar power wind and biomass.

ISM sets up rock-burst rsearch unit at Chinakuri

The Department of Mining Engineering of Indian School of Mines set up a Field Rock-burst Research Laboratory at Chinakuri. At this laboratory a Racal Thermionic Geostore Seismic Recorde is being set up to monitor the occurrence of rock-burst events. The project has been sponsored by the Ministry of Energy.

The working in Dishergarh coal seam at depths in excess of 300m have been generally beset with the problem of bumps for the past fifty years. The seam has an estimated reserve of out 500 million tonnes (proved, indicated and inferred) of coal, and the bulk of this reserve lies at depths of 300—1200m or more. At these depths, the workings are likely to be subject to bumps.

This project has been undertaken by an interdisciplinary team of Indian School of Mines to study and understand the mechanics of occurrence of bumps in deep coal seams so as to evolve a suitable mining method for safe and efficient working of these seams.

This is one of the six major research projects in hand at Indian School of Mines.

Awards & Medals

INSA Awards

The Indian National Science Academy has honoured 20 young scientists for their outstanding work in the field of Science and Technology for the year 1981. The award carries a medal. Rs. 5,000 and a citation. The following are the recipients of the award :

Dr. K. S. Sidhu, Department of Zoology, Punjab Agricultural University, for his contribution on the histochemistry and biochemistry of buffalo spermatozoa.

Dr R. N. Chatterjee of University of Culcutta for his work in the field of dosage compensation in drosophila chromosomes.

Dr U. C. Das, National Geophysical Research Institute, Hyderabad, for his contribution in developing computer programmes in geoelectrical work.

Dr J. B. Joshi, Department of Chemical Technology, University of Bombay for his work on analysis of multiphase contractors.

Dr Chittaranjan P. Katti, Department of Mathematics, Indian Institute of Technology, New Delhi, for his work on numerical analysis.

Dr B. D. Kulkarni, Chemical Engineering Division, National Chemical Laboratory, Pune, for his work on analysis of fluidism, beds and multiplicity in reacting systems.

Dr V. K. B. Kota, Physical Research Laboratory, Ahmedabad, for his work in the field of theoretical nuclear physics.

Dr A. C. Kunwar, Liquid Crystals Laboratory, Raman Research Institute, Bangalore, for his outstanding studies on anabolic steroids and cholesterol-membrane interaction.

Dr A. K. Lala, Department of Chemistry, IIT Bombay for his outstanding studies on anabolic, steroids and cholesterol membrane interaction.

Dr (Mrs) Sukhadamohan Das, Indian Institute of Horticultural Research (Bangalore) for her studies on the agrophysiological impact of the allelopatic effects of parthenium hysterophorus.

Dr R.N. Nagendra, Department of Geophysics, Osmania Universty, Hyderabad, for his contribution in developing mathematical modelling in transient pulse electromagnetic methods.

Dr Prakash S. Nagarkanti, Department of Microbiology, Defence Research and Development Establishment, Gwalior, for his work on dengue virus infection.

Dr R Nagaraj, Centre for Cellular and Molecular Biology, Regional Research Laboratory, Hyderabad, for his work on alamethicina.

Dr I.D. Pain, Department of Enzyme Engineering, Indian Institute of Chemical Biology, Calcutta, for a new approach in hormones research.

Dr S. M. Srivastava, Statistical Mathematics Division, Indian Statistical Institute, Calcutta, for his work in the field of measure theory.

Dr K. B. Sainis, Medical Division, Babha Atomic Research Centre, Bombay, for his studies on receptors on normal and leukaemic lymphoctes.

Dr R. D. Tripathi, Natural Pesticide Laboratory, Botany Department, University of Gorakhpur, for his studies on the isolation of compounds from flowering plants toxic to pathogenic fungi.

Dr K. P. R. Vittal, All-India Coordinated Research Project for Dryland Agriculture, Hyderabad,

Dr B.C. Roy National Awards

Among the three awarded the Dr. B.C. Roy National Award this year are two who were former Vice-Chancellor and Director, Dr. K.S. Murty, former Vice-Chancellor of Sri Venkateswara University has been selected for the award for his contributions in the field of Philosophy and Dr. K.L. Wig, former Director of the All India Institute of Medical Sciences for his contribution to Medicine.

Dr. Harindranath Chattopadhyaya is the other recipient awarded for his contributions to literature.

Chinoy Medal

Six scientists have been selected for the award of Chinoy Medal for the years 1976 to 1981. The awards were instituted to commemorate the name of Prof. J.J. Chinoy, a noted Plant Physiologist.

The six selected are :

Dr. K.S. Krishna Sastry, Professor of Department of Crop Physiology, University of Agricultural Sciences, Bangalore; Dr. G.S. Sirohi, Head of the Division of Plant Physiology, I.A.R.I., New Delhi (he was the first Indian to go to Antartica in 1960-61); Prof. S.C. Maheshwari, Dept. of Botany, Delhi University; Prof. V.S. Ramadas, School of Life Sciences, S.V. Univesity, Tirupati; Prof. S.P. Sen, Dept. of Botany, Kalyani University; and Dr. G.V. Joshi, Head of the Dept. of Botany, Shivaji University, Kolhapur.

Classified Advertisements

(Continued from Page 174)

Tribe candidates) in the name of Registrar, Indian Institute of Technology, Kanpur.

Applicants who are employed in Government, Semi-Government organisation or Institute should send their applications through proper channel else they will be required to produce a 'NO OBJECTION CERTIFICATE' from their employers at the time of interview.

Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Special consideration will be given disabled persons, possessing the requisite qualifications and whose handicap will in no way be impediment to their assigned duties.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 **on or before March 20, 1982**.

THE UNIVERSITY OF BURDWAN
RAJBATI : BURDWAN
WEST BENGAL
Advertisement No. 15/81-82
Dated : 2 February, 1982

Applications in the prescribed form are invited for the posts of Professor in the approved scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500/- plus dearness and other allowances, pensionary benefits according to the rules of the University.

A Professor of Economics ...One post (lien bound but likely to be declared as permanent)
B. Professor of Political Science ...One post (lien-bound)
C. *Professor of* Chemistry *...One post* (Permanent)

MINIMUM QUALIFICATIONS

1. (a) A Doctor's Degree or published research work of an equally high standard, and
   (b) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in the relevant subjects or an equivalent degree of a foreign University.
2. **Additional Requirements**
   (i) At least ten years' teaching experience in postgraduate class;
   (ii) Competence to plan and supervise Research Project;
   (iii) Publication of sufficient merit.

DESIRABLE QUALIFICATION : SPECIALISATION OR PROFICIENCY

For A, B & C : Any major area of the relevant subject.

The University Council may, on recommendations of the appropriate Selection Committee, waive any of the requirements in view of the candidates specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other *information apply to the Registrar* with self-addressed stamped (0.50 p.) envelope (9" x 4")

Last date for submission of application with requisite fee of **Rs. 5/-** is **1st March, 1982**.

A.K. Chaudhuri
REGISTRAR

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. **Bajaj, Nirmala.** Some problems of fixed point theorem. University of Saugar. Prof. P.L. Sharma.

2. **Bhatt, Hemant.** Some problems in general topology. University of Saugar. Dr. K.K. Dubey.

3. **Dhar, Ravi Kumar.** Convolution measure algebras. Panjab University. Dr. H.K.L. Vasudeva, Department of Mathematics, Panjab University, Chandigarh.

4. **Dikshit, Shri Prakash.** Some problems on field point theorem. University of Saugar. Dr. R.K. Jain.

5. **Dubey, Vajay Kumar.** Certain generalization in topology. *University of Saugar. Dr. S.N. Maheshwari.*

6. **Kaurv, Rajamayya.** Some problems related to fixed point theory. University of Saugar. Dr. R.K. Jain.

7. **Rajoria, Mahesh Kumar.** A study of some fixed point theorems. University of Saugar. Dr. R.K. Jain.

8. **Rajput, Shivram Singh.** Some problems on fixed point theorems. University of Saugar. Prof. P.L. Sharma.

9. **Rama Kant.** Some nonlinear stability problems in electro-magnetohydrodynamics. Panjab University. Dr. S.K. Malik, Department of Mathematics, Panjab University, Chandigarh.

10. **Suneja, Keshi.** Applications of stochastic processes. Maharshi Dayanand University. Dr. R.K. Tuleja, Reader, Department of Mathematics. Maharshi Dayanand University, Rohtak.

Chemistry

1. **Agrawal, Abha.** Metabolic and neurochemical studies in hookworm parasites. Kanpur University. Dr. S.N. Ghatak, Asstt. Director, Biochemistry Division, Central Drug Research Institute. Lucknow.

2. **Dubey, Madhurima.** Study on polymerization of styrene and c-methyl styrene in presence of P-nitrobenzyle triphenyl phosphonium ylide. Kanpur University. Prof. G.N. Mathur. Head, Department of Plastics Technology, Harcourt Butler Technological Institute, Kanpur.

3. *Goverdhan Lal. Studies on the production of high* fructose syrup from bagasse. Kanpur University. Dr. K.A. Prabhu. National Sugar Institute, Kanpur.

4. **Gupta, Sanjai.** Studies on bending of toxic metal by *proteins in relation to ecotoxicology.* Kanpur University. Dr. P.N. Viswanathan, Industrial Toxicology Research Centre, Lucknow.

5. **Kakkar, Poonam.** Studies on free radical processes in toxicity of air pollutants. Kanpur University. Dr. P.N. Vishwanathan, Scientist, Industrial Toxicology Research Centre, Lucknow.

6. **Khan, Wasi Uddin Ahmed.** Biochemical studies on toxicity of halogenated (trichloroethylene) and aromatic hydrocarbons. Kanpur University. Dr. K.P. Pandya, Asstt. Director, Industrial Toxicology Research Centre, Lucknow.

7. **Lal, Atul Kumar.** To study the formation of organic acids (carboxylic and nitrogenous) during growth of sugarcane plant and their role in development of coloured complex compounds in sugar system. Kanpur University. Dr. A.P. Gupta, Prof., Department of Sugar Chemistry, National Sugar Institute, Kanpur.

8. **Poonam.** *Analytical investigations on 1-(2-Quinolylazo)-2, 4, 5-Trihydroxy-benezene (QATB).* Maharshi Dayanand University. Dr. Ishwar Singh, Lecturer, Department of Chemistry, Maharashi Dayanand University, Rohtak.

9. **Prasad, Arun Kumar.** *Studies on anaerbic cell surface* in relation to virulence and differentiation using lecting as probes. Kanpur University. Dr. Prem Sagar. Biophysics Division, Central Drug Research Institute, Lucknow.

10. **Prem Lata.** *Experimental and theoretical studies on* the electronic spectra of some disubstitued benzenes. Panjab University. Prof. D.V.S. Jain, Department of Chemistry, Panjab University, Chandigarh.

11. **Radhamma, M.P.** Redox titrimetry in non-aqueous media. University of Kerala. Dr. P. Indrasenan, Department of Chemistry, University of Kerala, Trivandrum.

12. **Rishi Shanker.** Studies on biodegradation and toxicity of some chemical additives used in plastics. Kanpur University. *Dr. Prakash K. Seth, 293-C, Nirala Nagar,* Lucknow.

13. **Sarasvat, Sanjeev Kumar.** Studies on oxidation reaction of tarpenoidal and related compounds. Kanpur University. Dr. Ganesh Chandra, Department of Chemistry, Harcourt Butler Technological Institute, Kanpur.

14. **Satya Parkash.** Statistical thermodynamics of binary and ternary liquid mixtures. Maharshi Dayanand University. Dr. P.P. Singh. Reader, Department of Chemistry, Maharshi Dayanand University, Rohtak.

15. **Sawal, Kewal Krishan.** Studies in the syntheses of some benzophenanthridine alkaloids using benzyne and photo initiated reactions. Panjab University. Prof. S.V. Kesar, Department of Chemistry, Panjab University, Chandigarh. Dr. V.P. Gupta, Department of Chemistry, Panjab University. Chandigarh.

16. **Sharma, Kumkum.** Studies on pyridinium ylides and π sulfuranes. Kanpur University. Dr. Saroj Malik, Department of Chemistry, Acharya Narendra Deva Mahapalika Mahila Mahavidyalaya, Kanpur.

17. **Sharma, Satish Kumar.** Studies of aza-steroids and related compounds. *Panjab University. Prof. S.V. Kesar,* Department of Chemistry, Panjab University, Chandigarh. Dr. Paramjit Singh, Department of Chemistry. Panjab University, Chandigarh.

18. **Shukla, Madhu.** Studies on inter-esterification of gels. Kanpur University. Dr. A.K. Vasishtha, Harcourt Butler Technological Institute, Kanpur.

19. **Siddiqui, Roshan Ara.** Chemical changes in pesticides induced acute toxicity. Kanpur University. Dr. M.A. Matin, Industrial Toxicology Research Centre, Lucknow.

20. **Srivastava, Anita.** Studies on purification and chemical characterisation of respiratory allergens of Amaranthus spinosus pollens. Kanpur University. Dr. K.C. Saxena, Division of Biochemistry, Central Drug Research Institute, Lucknow.

21. **Srivastava, Nirupma.** Studies on phosphonium and arsonium ylides. Kanpur University. Dr. Saroj Malik, Department of Chemistry, Acharya Narendra Deva Mahapalika Mahila Mahavidyalaya, Kanpur.

22. **Sulekha, A.** Photochemistry of some ortho nitro arenes. University of Kerala. Dr. K.N. Rajasekharan, *Department of Chemistry, University of Kerala, Trivandrum.*

23. **Suman Lata.** Organic electrochemistry. Maharshi Dayanand University. Dr. K.S. Sharma, Reader, Department of Chemistry, Maharshi Dayanand University, Rohtak.

24. *Tripathi, Lalit Mohan. Studies on compounds acting* on central nervous system (C.N.S.). Kanpur University. Dr. V.K. Mohan Rao, Division of Biochemistry, Central Drug Research Institute, Lucknow.

Earth Sciences

1. **Bahuguna, Vinod Kumar.** Geology of Northern Garhwal Himalaya U.P. University of Delhi. Dr. P.S. Sakalani, Department of Geology, University of Delhi. Delhi.

2. **Bhatnagar, Pradeep K.** Petrological studies of the rocks around the mineralized zone at Askote, Dist. Pithoragarh, U.P. University of Delhi. Dr. Mihir Deb, Department of Geology, University of Delhi, Delhi.

3. *Brijesh Kumar. Geological studies around Guryal* Ravine (Permo-triassic senuence) Srinagar J. & K. University of Delhi. Dr. Vinay Jhingran, Department of Geology, University of Delhi, Delhi.

4. **Gurdev Singh.** A study of krol formation in parts of Sirmur District, Himachal Pradesh, India. Panjab University. Dr. A.D. Ahluwalia, Department of Geology, Panjab University, Chandigarh. Dr. V.J. Gupta, Department of Geology, Panjab University, Chandigarh.

5. **Guha, Dipendu Bhushan.** Petrological investigations of the pelitic schists and the associated rocks around Doda, District Doda, Jammu and Kashmir (India). Panjab University. Dr. B.K. Dass, Reader, Department of Geology, Panjab University, Chandigarh.

6. **Harpaul, Vishnudatt.** Geology and geochemistry of the crystalline rocks of Manikaran Area, Kulu District, Himachal Pradesh. Panjab University. Prof. A.K. Prasad, Department of Geology, Panjab University, Chandigarh. Dr. P.K. Mehta, Department of Geology, Panjab University, Chandigarh.

7. **Hussein Al-Ali, Nawal Ahmad.** Geology and geochemistry of the thermal waters and associated mineralisation in Kulu Simla District, Himachal Pradesh, India. Panjab University. Prof. A.K. Prasad, Department of Geology, Panjab University, Chandigarh.

8. **Jauhari, Pratima.** Environment of formation of marine manganese nodules. University of Delhi. Dr. G.S. Roonwal, Department of Geology, University of Delhi, Delhi.

9. **Joshi, Devi Datt.** Fluvial sedimentology. University of Delhi. Dr. S.K. Tandon, Department of Geology, University of Delhi, Delhi.

10. **Loyal, Raminder Singh.** Vertebrate palaeontology and biostratigraphy of the Subathu formation, Subathu-Dharampur area (Himachal Pradesh). Panjab University. Prof. Ashok Sahni Department of Geology, Panjab University, Chandigarh

11. **Nambiar, A. Raghavan.** Geology and geochemistry of precambrian rocks along Bavali lineament North Kerala. University of Kerala. Dr. P.T. Roy Chacko, Department of Geology, University of Kerala, Kariavattam.

12. **Panwar, Piyush.** Geological and geochemical investigation of the base metal sulphide deposit at Rangpo and adjoining areas, Sikkim, India. Panjab University. Dr. A.K. Prasad, Department of Geology, Panjab University, Chandigarh. Dr. Ravinder Kumar, Department of Geology, Panjab University, Chandigarh.

13. **Sahai, Arun Kumar.** An application of remote sensing techniques in geological studies of Ravi Basin. University of Delhi. Prof. V.K. Verma, Department of Geology, University of Delhi, Delhi.

14. **Saini, Sandip Singh.** A contribution to the study of central crystalline rocks occurring near Sangla, Distt. Kinnaur, Himachal Pradesh (India). Panjab University. Dr. Ramesh Kumar, Department of Geology, Panjab University, Chandigarh.

Engineering & Technology

1. **Vijayagopala Menon, R.** Investigations on solar furnaces. University of Kerala. Dr. G. Inayattullah, Asstt. Prof., Department of Mechanical Engineering, College of Engineering, Trivandrum. Prof. P.K. Rohatgi, Director, Regional Research Laboratory, Trivandrum.

BIOLOGICAL SCIENCES

Anthropology

1. **Mahadevan, Usha.** Bio-social study of Tamilian brahmins. University of Delhi. Prof. M.K. Bhasin, Department of Anthropology, University of Delhi, Delhi. Prof. Indera P. Singh Department of Anthropology, University of Delhi, Delhi.

2. **Rustogi Nirmal.** Biochemical genetics. University of Delhi. Dr. S. Seth, Department of Anthropology, University of Delhi, Delhi. Dr. P.K. Seth, Department of Anthropology, University of Delhi, Delhi.

3. **Verma, Rashmi.** Family study of the trends in obesity and leanness. University of Delhi. Prof. Indera P. Singh, Department of Anthropology, University of Delhi, Delhi.

Botany

1. **Babele, Gopi Shankar.** Studies in the viability, vitality and vigour of some seed types of some forest trees. University of Saugar. Dr. A.K. Kahaya.

2. **Bhan, Livinder Kaur.** Nutritional studies on some pathogenic fungi. Panjab University. Dr. G.S. Rawla, Reader, Department of Botany, Panjab University, Chandigarh.

3. **Chaurasia, Shiv Kumar.** Diel periodicity of zooplankton : Its composition and production. University of Saugar. Dr. A.D. Adoni, Prof. R.C. Saini.

4. **Dua, Vijay Kumar.** Antifungal activity of certain homoeopathic drugs. University of Saugar. Dr. D.C. Atri.

5. **Gemini, Ragini.** Ecological study of periphyton of Sagar lake. University of Saugar. Prof. J.P. Mishra. Dr. Jayashri Purohit.

6. **Ghosh, Kartik.** Limnology of some aquatic ecosystems with special reference to microbes and benthos. University of Saugar. Dr. A.D. Adoni. Prof. S.B. Saksena.

7. **Jaiswar, Bal Krishan.** Studies on some coprophilous fungi. University of Saugar. Dr. S.C. Agrawal.

8. **Joshi, Gunwant H.** Diurnal studies of physico chemical properties of limnological importance. University of Saugar. Dr. A.D. Adoni. Dr. R.N. Dakwala.

9. **Kalra, Jaspal Singh.** Studies of fungal diseases of vegetables marketed in Chandigarh. Panjab University. Prof. H.S. Sohi, Department of Botany, Panjab University, Chandigarh.

10. **Kumar, Alka M.** Effects of nitrogen dioxide and hydrogen sulfide on growth and nitrogen/sulfur metabolism of maize seedlings. University of Indore. Dr. H.S. Shrivastava, Reader, Department of Life Sciences, University of Indore, Indore.

11. **Misra, Vipin Vinod.** Ecological studies of macrophytes and macro fauna in some inland fresh waters around sagar. University of Saugar. Dr. A.D. Adoni. Prof. J.P. Misra.

12. **Narula, Ashok Kumar.** Taxonomic studies on xylariaceus fungi from India. Panjab University. Dr. G.S. Rawla, Department of Botany, Panjab University, Chandigarh. Dr. M.P. Sharma, Department of Botany, Panjab University, Chandigarh.

13. **Sarwal, Brij Mohan.** Systematic studies on some Indian agarics. Panjab University. Dr. G.S. Rawla, Reader, Department of Botany, Panjab University, Chandigarh.

14. **Saxena, Pankaj.** Physiological and biochemical studies of storage diseases of potato. University of Saugar. Dr. K.M. Vyas.

15. **Trehan, Renu.** Biosystematic studies on some taxa of Sasbania. Panjab University. Dr. T.S. Sareen, Department of Botany, Panjab University, Chandigarh.

16. **Tripathi, Jai Prakash.** Ecophysiological studies of Anogeissus pendula Edgew. University of Saugar. Dr. S.P. Vajpei.

17. **Vaish, Ashok Kumar.** Diel periodicity of phytoplankton its composition and production. University of Saugar. Dr. A.D. Adoni.

Zoology

1. **Koshy, Moli P.** A biophysical study of sperm membranes. University of Indore. Dr. (Miss) Prabha Agarwal, Lecturer, Department of Life Sciences, University of Indore. Indore.

Medical Sciences

1. **Ojha, Anil.** Phytochemical and pharmacological evaluation of Caseria esculenta and allied species. University of Delhi. Dr. G.K. Narayanan. Dr. D.K. Basu.

2. **Sridharan, K.** Chemical investigations of some medicinal plants and some synthetic reactions. University of Delhi. Prof. J.S. Qadry, University of Delhi, Delhi. Dr. B.K. Basu.

Agriculture

1. **Goel, Arun.** Physiological and biochemical analysis of yield in some oilseed crops. University of Indore. Dr. S.K. Sinha, Prof., Water Technological Centre, Indian Agricultural Research Institute, New Delhi.

2. **Gupta, Madhu.** Flowering and fruit set behaviour in grain legumes. University of Indore. Dr. S.K. Sinha, Prof., Water Technological Centre, Indian Agricultural Research Institute, New Delhi.

3. **Rana Pratap Singh.** Assimilation of inorganic nitrogen and primary amination [illegible] University of Indore. Dr. H.S. [illegible] of Life Sciences, University [illegible]

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Anand, Ranjna. Functional equations on algebraic structures. University of Delhi.
2. Arthanari, M. Primary and tertiary ideals in triple systems. University of Madras.
3. Balakrishna Reddy. Numerical analysis, initial and boundary value problems : Studies in fixed point theory. University of Madras.
4. Balasubramanian, G. Contributions to the study of some generalisations of compact spaces. University of Madras.
5. Bedi, Surinder Singh. Jacobson radical of a group ring. Panjab University.
6. Chattopadhyay, Haimabati. Some results on fixed points in metric and Banach spaces. University of Burdwan.
7. Dorai, P. Prime ideals in a lie algebra. University of Madras.
8. Khalil Ahmad. A study of Schauder decompositions and best approximations in Banach spaces. University of Delhi.
9. Moorthy, Premalatha. On the integral representation of super-harmonic functions: Classical and axiomatic cases University of Madras.
10. Narayana, Namala Venkata. Magnetofluids with microstructure. Andhra University.
11. Philip. Varughese. Special functions. University of Calicut.
12. Rajeswari, V. From analytic functions to superharmonic functions. University of Madras.
13. Ramesh, T. Some problems in min-max and combinatorial programming Kakatiya University
14. Shrivastava, Mahesh Kumar. A study of some qualitative aspects of nonlinear differential equations and their applications to engineering problems. University of Jabalpur.
15. Subrahmanyam, Kota Hanumath Sitarama. Growth of entire Dirichlet Series in one and several complex variables and some other contributions to Dirichlet Series. Andhra University.
16. Sundera Murthy, M. Some problems in combinatorial programming: A pattern recognition approach. Kakatiya University.
17. Thandapani, E. On continuous and discrete inequalities. University of Madras.

Statistics

1. Choudhury, Haren. Consumption patterns of households in Assam: An econometric study. Gauhati University.
2. Parthasarathy, R. Some studies on topics in time series. University of Madras.

Physics

1 Anand Parkash. Evaluation of dielectric parameters and dielectric studies of some transition metal oxides using cavity perturbation technique. University of Delhi.
2. Bandyopadhyay, Parthanath. Study of electrical properties in chalcogenide glass University of Calcutta.
3. Chinnappan, V.A. Isotopic invariants of some polyatomic molecules. University of Madras.
4. Gnanam, F.D. Some aspects of gel grown and natural calcite crystals with special reference to periodic crystallisation. University of Madras.
5. Hanumantha Rao, Kosuri Electrical, magnetic and Mossbauer studies in CR and AI doped zinc manganese ferrites. Andhra University.
6. Joshi, U.C. Studies in star clusters. Kumaun University.
7. Pal, Subrata Kumar. Studies on the Molecular mechanisms of host-virus interaction. University of Calcutta.
8. Pande, Usha. Edge excitation red shift in relation to proton transfer in the excited state. Kumaun University.
9. Sahu, Kusum. EPR and optical study of radiation damage in semiconducting and ionic crystals. University of Delhi.
10. Sargurumurthy, M. Molar polarization and I.R. studies of dipole, dipole interactions in liquid phase. University of Madras
11. Sangodan, V. Evaluation of molecular constants of some substituted dinitrobenzenes and benzaldehydes. University of Madras.
12. Surjit Singh. Some time dependent problems in fluid mechanics. Himachal Pradesh University.
13. Varadarajan, R Studies of molecular interactions in carboxylic acids and their esters. University of Madras.

Chemistry

1. Aloka Debi Studies of ions by paper electrophoresis. University of Calcutta.
2. Balasubramanian, P. Synthetic approaches to carbocyclic spiro compounds. University of Madras.
3. Banerjee, Uttam Kumar. Nature of phenoxides of niobium (V) and tantalum (V) Himachal Pradesh University.
4. Basheer Ahmad, K.A. Oxidation of aliphatic acetals with chromic acid: A kinetic and mechanistic study. University of Madras
5. Bhattacharyya, Sadananda. Studies on the coordination compounds of uranyl ion with hydroxamic acids and their applications. University of Calcutta.
6. Dash, Sharat Chandra. An examination on the influence of substituent-molecular parameters in various chemical and physical processes. Sambalpur University.
7. Hanamantha Rao, V. [illegible] Some kinetic studies on the oxidation of tellurium (IV) Andhra University.
8 Kher, Sushma. Synthesis and characterization of mono- and bis (cyclopentadienyl) uranium (IV) derivatives with O, N or S containing ligands. University of Delhi.
9. Konar, Bidyutbaran. Studies on dilute solution properties of chlorosulfonated polyethylene University of Calcutta.
10. Kunjunni T. Chemical constituents of some of the medicinal plants and their pharmacological studies. University of Madras.
11. Manoharan, V. Oxidations with N-Bromosaccharin: A kinetic and mechanistic study. University of Madras.
12. Mohamad Azizul Islam. Chemical investigation of Milletia ovalifolia seeds and synthesis of desmodol and r-isocordoin. University of Delhi.
13. Obul Reddy, A. Graft copolymerization of vinyl monomers onto gelatin. University of Madras.
14. Oleace. Dorothy. Benzohydrazides as reagents for carbonyl compounds and as antibacterial agents. Jiwaji University.
15. Quaisar, Anees. Kinetic and analytical studies on the oxidation of organic compounds by quadrivalent cerium. University of Jabalpur.
16. Ranganathan, C.K. Studies on the reactions of some diperoxochromium (IV) complexes and their oxidation reduction mechanisms. University of Madras
17. Roy, Ajit Kumar. Physico-chemical studies of materials related to fertilizers. Indian School of Mines, Dhanbad.
18. Sachan, Narendra Pal. Electrochemical studies of metal ion complexes with biologically and pharmaceutically important ligands at DME. University of Rajasthan
19. Sarker, Abinash Chandra. Chemistry of some medicinal plant products. University of Calcutta.
20. Sehgal, Praveen Kumar. Studies on the binding of steroids therapeutic agents and intermediary metabolites by collagen. University of Madras.
21. Sesha Ratnam, E. Studies on the solvent extraction of salicylic, thiosalicylic and anthranilic acid complexes of nickel (II) in the presence of some nitrogen bases : Comparison of oxygen, sulphur and nitrogen donor atoms Nagarjuna University.

22. *Srivastava, Ashutosh. Studies on analytical aspects* of organic functional groups. D. Sc. University of Jabalpur.

23. Unni Nair, Balachandran. Studies on the synthesis and reactions of some chromium (III)—macrocyclic complexes. University of Madras.

24. *Vaidya, V.P. Synthetic studies in benzofuran.* Gulbarga University.

25. Vijayakumar, C.T. Polymer chemistry: A comparative study of the kinetic and thermodynamic approaches to the glass transition phenomenon in high polymers. University *of Madras.*

26. Yusufi, Fakhrealam Khan. Studies in the electro and magneto-migration of metal ions in complexing media. Jiwaji University.

Earth Sciences

1. Ganapathi, S. Geological and geomorphological evolution of the coastline between Bhavnagar and Mahuva of Southeastern Saurashtra, Gujarat State. M.S. University of Baroda.

2. Ramakrishna, Tatavarty Sarabha. Gravity magnetic and shallow note temperature surveys over the precambrian shield and across some known mineral belts in Rajasthan. Andhra University.

3. Umamaheswara Rao, Vadlamudi. Some agrometeorological aspects of the semi arid region of South India. Andhra *University.*

Engineering

1. *Krishnamurthy, B.M. Polyphase reluctance machine* with a slitted iron rotor. University of Madras.

2. Panchanathan, S. Spatial analysis of ground water potential of Tamil Nadu with reference to its major landforms University of Madras.

3. *Ramanayya, T.V. Simulation studies of traffic* capacity of road system for Indian conditions. Kakatiya University.

BIOLOGICAL SCIENCES

Anthropology

1. *Kanwaljit Singh.* Age changes in *biological* variables among high altitute-Bodh males of Lahaul Tehsil, Lahaul-Spiti District, Himachal Pradesh, University of Delhi.

2. Shobha Rani. A study of genetic markers in the human serum in mentally retarded individuals. University of *Delhi.*

Biochemistry

1. *Marita, Rosalind. The effect of Anna Pavala sindhoora* on plasma lipoproteins and tissue lipids in experimental atherosclerosis studies in rabbits. University of Madras.

2. Mukhopadhyaya, Pratima. Passage of viral antibodies across the placental barrier. *University of Calcutta.*

3. Mukhopadhyay, Satyabrata. Mode of action of mycobacillin. University of Calcutta.

4. Radhakrishnan, V. Nutritional and biochemical studies on mango kernal fat. University of Madras.

5. Rajendran, V.M. Metabolic and functional studies on the intestine in streptozotocin induced diabetes controlled by Gymnea sylvestre, R. Br. University of Madras.

6. Saha Subhaschandra. Biochemical and Histological studies of hormonal contraception in male rat. University of Calcutta.

7. Sarkar, Gayatri. Studies on toxicity of chromium in chick embryos. University of Madras.

8. *Saroja, S. Prevalence of vitamin-A deficiency among* young children and supplementation of B carotene rich foods. University of Madras.

9. Sur, Jayasri. Effects of amines on fibrinogen level. University of Calcutta.

Microbiology

1. Jayaraj, Y.M. Studies on the microbial interactions and *the removal of pathogenic bacteria in the sewage stabili*sation pond ecosystem. Gulbarga University.

Botany

1. Acharya, Soumyadeb. Regulation of abscission phenomenon in some commonly growing medicinal plants of West Bengal. University of Burdwan.

2. Das, Sampa. *Cell biological aspects of* sporulation in Saccharomyces serevisiae. University of Calcutta.

3. Ghosh, Bidyabhusan. Hydrocarbon utilizing microorganisms with special reference to their role as single cell protein and production of useful metabolic products. *University of Burdwan.*

4. Jyotsna, Vimal. Morphogenetic studies in vitro in Cedrus deodara Rox, Gamolepis legets DC and Hyoscyamus niger Linn. Panjab University.

5. Kalaichelvan, P.T. Prohibitions in groundnut, Arachis *hypogaea. University of Madras.*

6. Manian, S. Studies on the sheath blight disease of rice. University of Madras.

7. Mohanty, Debendra Prasad. Physiological and biochemical studies on the effect of transpiration reducing chemicals on plants. Utkal University.

8. Muruganandham, V. Protection studies in Fusarium wilt of cotton. University of Madras.

9. Nagamani. Bade. Studies on induced mutants in Indian mustard, Brassica juncea. Andhra University.

10. Raghu, Jagdish Singh. Growth pattern and physiological behaviour of wheat varieties in relation to production under various moisture regions. University of Jabalpur.

11. *Raman, A. Morphological studies on some galls* induced by Thrips (Thysanoptera : Insecta) from South India. University of Madras.

12. Romesh Chand Study of oligofurostanosides from medicinal plants of Himachal Pradesh. Himachal Pradesh *University.*

13. Sankeranarayanan, Vasanthi. Studies on certain aspects of wilt disease of cotton with special reference to 'Veinclearing' toxin. University of Madras.

14. Singh, Mahendra Nath. Studies on the variable *efficiency of aphid vectors in transmitting plant viruses* and epidemiology of potato viruses Y and Leaf roll. Himachal Pradesh University.

15. Swami, U. Damayanti. Mutation breeding in desi cotton, Gossypium arboreum L. race indicum. Kakatiya University.

Zoology

1. Abdul Hassan. Histology and *histochemistry of the* alimentary canal of a few nematodes inhabiting the gastro-intestinal tracts of some vertebrates of economic importance with a note on food uptake of the parasites. University of Burdwan.

2. Chakraborti, Sujit. Studies on the systematics and biology of some oriental rodents. University of Calcutta.

3. Das, Sudhansu. Anatomy, microanatomy and physiology of the digestive organs of some gastropod molluses living in different habitat. University of Calcutta.

4. Gunasekaran, S. Effect of essential fatty acid deficiency on the development of brain with particular reference to structure function relationship of myelin in mice, Mus *musculus. University of Madras.*

5. Gupta Navneet Kumar. Histopathological and biochemical studies on the liver of certain mammals following internal irradiation. Himachal Pradesh University.

6. Gupta, Prem Kumar. An ecological study of the *macrobenthic communities in Kumaun Lakes.* Kumaun University.

7. Janardhana Rao, Kocherlakota Venkata Satya. Studies on the biology and biometry of a sciaenid fish, Pennahia macrophthalmus Bleecker with observations on the sciaenid fishery off Visakhapatnam. Andhra University.

8. Jayarama, Hegde M. Chromosomal studies in natural populations of some acridiade (orthoptera) and effects of certain chemotherapeutic agents on chromosomes. Mangalore University.

9. Joshi, P.C. Studies on the reproductive cycle and neurosecretory cells of a fresh water carb, Potamon koolooense (Ratbun). Kumaun University.

10. Khamare Kailash Gyansingh. Reproduction in the Indian sheathtailed bat, Taphozous melanopogon Temminck. Nagpur University.

11. Mercy Bai, P. A comparative study on the reproductive biology of two estuarine polychaetes, Marphysa *gravelyi and Lycastis indica. University of Madras.*

12. Nandi, Swapan Kumar. On morphology and biology of some chironomides (Diptera : Chironomidae) of West Bengal. University of Burdwan.

13. Panicker, K.N. Parameswara. Studies on the mosquitoes of Poddicherry with particular reference to ecology, behaviour and population dynamics of anopheles subpictus Grassi 1899 (Diptera : Culicidae). University of Madras.

14. Pradeep, Guru Dayal. On the osteological architecture of certain teleostean fishes. University of Calcutta.

15. Saha, Krishna. Nematodoses of some vertebrates of Burdwan District. University of Burdwan.

16. Siva Kumari, Jagarlamundi. Some aspects of anatomy, histology and histochemistry of the teleost Magalops cyprinoides (Broussonet). Andhra University.

17. Subhashini, M.H. Studies on haemolyph proteins of Scylla serrata (Forskal) (Crustacea : Decapoda). University of Madras.

18. Sultan, Rabia. Studies on the interrenal glands of certain teleosts. Bhopal University.

19. Sunder Raj, S. Kataksha. Studies on the polychaeta of Pulicat Lake. University of Madras.

20. Thangavelu, S. Studies on the biological and biochemical correlations during metamorphosis in the bagworm, Clania crameril Westwood (Lepidoptera : Psychidae). University of Madras.

Medical Sciences

1. Bandyopadhyay, Bishanbindu. Physical fitness and respiratory functions in urban and rural male college students with reference to their energy balance. University of Calcutta.

2. Ghosh, Ashokkumar. Selection of clinically suitable [illegible] evaluation of lower [illegible] of Calcutta.

[illegible] biochemical and pharmacological studies on prolactin. University of Madras.

4. Gunasekaran, S. Studies on insulin secretion in isolated monkey islets. University of Madras.

5. Lakshmi, S. Sulfate metabolism : Arylsulfatases of the central nervous system. University of Madras.

6. Maitra, Sarbari. Studies on certain aspects of heat stress and its homeostasis on albino rats University of Calcutta.

7. Mukhopadhyay, Debasis. Ascorbic acid and dehydroascorbic acid metabolism in diseases, stressful conditions. University of Calcutta.

8. Suthanthirarajan, N. Influence of stress on the neurochemical profile in animals and human subjects. University of Madras.

Agriculture

1. Agrawal, Aruna. Genetic analysis for yield and some quality attributes in macaroni wheat, triticum durum desf. C.S. Azad University of Agriculture and Technology.

2. *Ajmer Singh. Genetic and stability analysis* of fodder yield and other characters in oats, Avena sativa L. Haryana Agricultural University.

3. Anant Ram. Farm structure, resource use and productivity in agriculture in District Unnao, U.P. C.S. Azad University of Agriculture and Technology.

4. Arjun Singh. Studies on genetic parameters for some metric traits related to productivity in bread wheat, Triticum aestivum L. em. Thell. C.S. Azad University of Agriculture and Technology.

5. Bajpai, Sandhya. Effect of organic matter on the transformation and availability of nutrients and quality of grain. C.S. Azad University of Agriculture and Technology.

6. Bhatia, Rajendra Singh. Studies on gene action, combining ability, heterosis and selection parameters in some quantitative attributes related to productivity in bread wheat. C.S. Azad University of Agriculture and Technology.

7. Chaudhary, Hanuman Prasad. Role of phosphorus, sulphur and molybdenum in crop growth on eroded soils in relation to soil and water conservation. C.S. Azad University of Agriculture and Technology.

8. Dwivedi, Gopal Krishana. Biochemical studies on the nutritional quality of black gram varieties/strains, Vigna moongo L. Hepper. C.S. Azad University of Agriculture and Technology.

9. Ekanath, Talele Pundalik. Studies on the relationship between soil, plant and fertilizer with reference to levels and forms of potassium in soils from different agroclimatic zones of Maharashtra State. Mahatma Phule Agricultural University.

10. Ghosh, Madhuchhanda. Physiological studies on the effect of potassium on productivity of wheats under soil water stress. C.S. Azad University of Agriculture and Technology.

11. Hardial Singh. Genetic analysis of leaf rust resistance in components of K. Sona multilines and some varieties of wheat. Punjab Agricultural University.

12. Gupta, Anita. Biometrical analysis of genetic parameters of economic characters in sunflower (Helianthus annuus L.) *through Line X Tester analysis.* C.S. Azad University of Agriculture and Technology.

13. Jain, Alka. Study of genetic parameters of economic traits in sunflower. Helianthus annuus L. C.S. Azad University of Agricultural and Technology.

14. Jayaramaiah, M. Studies on the entomogenous fungus, Beauveria brongniartii (SACC) petch in relation to white grub, Holotrichia serrata Fab. and silkworm, Bombay mori Linn. and possibilities of its use in the management of the white grub. University of Agricultural Sciences, Bangalore.

15. Kolaramana, Mehar Singh. Effect of plant population and soil fertility on growth, yield and quality in two different types of groundnut varieties. Haryana Agricultural University.

16. Khelge, Veershetti Gurbasappa. Economic efficiency of milk production of cattle and buffalo in Marathwada (Maharashtra). Marathwada Agricultural University.

17. Maheswari, Renu. Wet blight of mung, phaseolus aureua Roxb. C.S. Azad University of Agricultural and Technology.

18. Mahmood Husain. A study on constraints to pulse production in Central U.P. C.S. Azad *University of Agriculture* and Technology.

19. Mishra, Madhu. Effect of inorganic, organic and bio-fertilization on black gram, Vigna mango and their residual fertility responses on wheat, Triticum aestivum C.S. Azad University of Agriculture and Technology.

20. Misra, Ram Lakhan. Mutational studies in gladioli, Gladiolus L. C. S. Azad University of Agriculture and Technology

21. Misra, Shashi Prabha. Genetics of yield and quality in yellow seeded 'rai' Brassica juncea (L) Czern & Coss. C.S. Azad University of Agriculture and Technology.

22. Mitra, Rabisankar. Seed treatment for maintaining the vigour and viability of some vegetables and pulses. University of Calcutta.

23. Neerja. Laboratory evaluation of certain chemosterilants against Corcyra cephalonica Staint. C.S. Azad University of Agriculture and Technology

24. Niranjan, Man Singh. Adequacy and achievement analysis of drought prone areas programme (DPAP) of District Jalaun in Uttar Pradesh. C.S Azad University of Agriculture and Technology.

25. Pandey, Reeta. Studies on the effect of insecticides on histopathology and Physiology of certain phytophagus insects. C.S. Azad University of Agriculture and Technology.

26. Sachan, Sahadeo Singh. Water relation and growth of mustard and safflower as influenced by plant population, soil fertility and moisture conservation practices under double cropping system in rainfed conditions. C.S. Azad University of Agriculture and Technology.

27. Sharma, Onkar Dutta. Response of onion to various levels of fertilizers application and moisture regimes. Meerut University.

28. Sharma, Raj Bala. Studies on bacterial blight of sesame, Sesamum orientale L. C.S. Azad University of Agriculture and Technology.

29. Singh, Amar Pal. A study on the stability of pesticide formulations with respect to temperature, moisture, and alkalinity effect. C.S. Azad University of Agriculture and Technology.

30. Singh, Brij Raj. Studies on a mosaic disease of chilli, Capsicum annum L. C.S. Azad University of Agriculture and Technology.

31. Singh, Ram Autar. Studies on nitrogen requirement of potato and potato plus mustard in inter-cropping with autumn planted sugarcane in Central U.P. C.S. Azad University of Agriculture and Technology.

32. Singh, Rishi Pal. Genetics of certain yield characters in green gram, Vigna radiata (L) Wilczek. C.S. Azad University of Agriculture and Technology.

33. Singh, Shrawan Kumar. Relative performance of

wheat and barley under resource constraints. C.S. Azad University of Agriculture and Technology.

34. **Singh, Veena Kumari.** *Genetic architecture of yield* and its components along with quality in sesame, Sesamum orientale L. C.S. Azad University of Agriculture and Technology.

35. Singh, Vijai Kumar. Dynamics of transfer technology in agriculture in Central U.P. C.S. Azad University of Agriculture and Technology.

36. Swamy, Grandhe Madhav. Credit needs and its impact on cropping pattern, net farm returns and employment in Kurnool Dist. Andhra Pradesh. Marathwada Agricultural University.

37. Tripathi, Ram Shankar. Resource use efficiency and level of production in agriculture in Bundelkhand Region of U.S. C.S. Azad University of Agriculture and Technology.

38. Yadav, Hari Dutta. *An estimation of credit needs*, its supply and utilization in the context of modern farm technology in District Jaunpur. U.P. C.S. Azad University of Agriculture and Technology.

39. Yadav, Paras Nath. Soil and nutrient losses through runoff in alluvial soils of Uttar Pradesh. C.S. Azad University of Agriculture and Technology.

40. Yadav, Ram Nagina. Corynespora blight of sesame, Sesamum indicum L. C.S. Azad University of Agriculture and Technology.

Veterinary Science

1. Bapat, Satish Trimbokrao. Physiological changes influencing ingestive behaviour in buffaloes. Haryana Agricultural University.

2. Deshpande, Krishna Sriniwasrao. Genetic and phonotypic evaluation of Fresian X Sahiwal crossbreds. Marathwada Agricultural University.

3. Mitra, Amitav. Studies on the additive and non-additive gene effects for some of the broiler truits as estimated from diallel mating systems and construction of selection indices in broilers. Orissa University of Agriculture and Technology.

4. Nedunchelliyan. S. Studies on the leather making potentiality of goat and sheep skins as influenced by certain *animal diseases. University of Madras.*

5. Sakhare. Pandit Govindrao. Factors affecting birth weight and growth rate of Friesian X Sahiwal cross breds. Marathwada Agricultural University.

6. Thomas, Kurien. Influence of particle size of feed and plane of feeding on growth, physiological reactions and agroass characteristics of growing-finishing pigs. Haryana Agricultural University.

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ANDHRA UNIVERSITY

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Applications in the prescribed form are invited for the following posts so as to reach the Registrar, Andhra University, Waltair on or before **1-3-1982**. Each application shall be accompanied by a Bank Challan receipt of **Rs. 10/- (Rupees ten only)** remitting the amount in the State Bank of India to the credit of Andhra University General Account (Ordinary) towards the Registration fee for the application. Postal Orders will not be accepted. Candidates residing outside Andhra Pradesh should remit the registration fee by M.O. or Demand Draft in favour of Registrar, Andhra University and send the M.O. receipt alongwith the application.

Department 1	Professor 2	Reader 3	Lecturer 4
1. Applied Physics	1	1	—
2. Botany	1	2+1*	—
3. Chemistry	—	—	1
4. Geography	1*	—	1+ 1 Cartographic Asst.
5. Geology	4	1*	2+1*
6. Meteorology & Oceanography	—	—	1*
7. Nuclear Physics	1*	1*	3*
8. Pharmaceutical Sciences	1*	—	—
9. Physics	1	1* +1 for Space Science	2*
10. Statistics	—	2	—
11. Zoology	—	—	1*
12. Politics & Pub. Admn.	—	3+1*	2
13. Mathematics	—	1	—
14. Economics	—	2	—
15. Sanskrit	—	2	—
16. Psychology & Para Psychology	—	2*	1*
17. Anthropology	—	1	1
18. Social Work	—	—	1*
19. Industrial Relations & Personal Management	—	1	—
20. Co-operation & Applied Economics	—	1*	—
21. Fine Arts	—	—	3
22. Commerce and Management Studies	—	1*	1

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Professor : Rs. 1500-60-1800-100-2000-125/2-2500

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The details of qualifications prescribed in respect of the above posts including the particulars and precise branch of specialisation which is needed and also the preferential qualifications considered desirable will be furnished along with the application form.

Requisition for the application forms may be made to Sri P. Hanumantha Rao Joint Registrar, Andhra University, Waltair accompanied by a self-addressed and stamped envelope and a State Bank of India challan for one rupee. Candidates residing outside Andhra Pradesh may, however, obtain the application form by remitting **one rupee** by M.O. or sending a Demand Draft in favour of the Registrar, Andhra University, Waltair, towards the cost of application **form**. The M.O. receipt should be sent alongwith the requisition for application form. Postal orders will not be accepted. The University reserves the right to fill or not to fill all or any of the ports. The cover containing the applications should be superscribed as "APPLICATION FOR APPOINTMENT TO THE POST OF————————. Persons already in service should send their applications through proper channel. Applications received after 5.00 P.M. on the due date will not be entertained.

M. Gopalakrishna Reddy
REGISTRAR

KONKAN KRISHI VIDYAPEETH

DAPOLI, DIST. RATNAGIRI

Advertisement No. EST/A-I/Advt./XXI 1038 of 1982, Dated 29-1-1982

Applications in the prescribed form are invited for the undermentioned posts. Application forms can be obtained from the Office of the Registrar, Konkan Krishi Vidyapeeth, Dapoli (Pin Code—415 712), Dist. Ratnagiri, Maharashtra State on sending a self-addressed envelope (10 × 23 cms.) with affixing postage stamps of 65 paise and a crossed Indian Postal Order of **Rs. 1/- (Rupee one only)** payable to the Comptroller, Konkan Krishi Vidyapeeth. Dapoli *(415 712), Dist. Ratnagiri.* Completed applications accompanied by a crossed Indian Postal Order worth **Rs 5/- (Rupees five only)** payable to the Comptroller, Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri, Maharashtra State should reach this office not later than **12th March, 1982.** Applications received after the due date will not be considered. A separate application with separate fee is required for each post. Government servants and the staff working under the local bodies should necessarily apply through proper channel. However, an advance copy of application may be sent by them to this office within the prescribed time-limit.

(I) FACULTY OF AGRICULURE

1. Assistant Professor of Bio-Chemistry	—One post
2. Assistant Professor of Statistics	—One post
3. Assistant Professor of Veterinary Science	—One post (Reserved for S.C./S.T./D.T. & N.T.).
4. Assistant Professor of Agril. Economics	—One post (Reserved for S.C. S.T D.T & N.T.)
5. Assistant Professor of Agril. Entomology	—One post (Reserved for S.C./S.T./D.T. & N.T.)
6. Vegetable Breeder	—One post (Reserved for S.C./S.T./D.T. & N.T.)
7. Farm Superintendent	—One post

INDIAN COUNCIL OF AGRICULTURAL RESEARCH SCHEMES

(A) Co-ordinated scheme for Research on Water Management

8.	Junior Scientist (Agril. Engineering)	—One post
9.	Junior Scientist (Statistics)	—One post

(B) Intensification of Research and Training on Pulse and Oilseed Crops

10.	Scientist-S-I (Agronomy)	—One post

(II) FACULTY OF VETERINARY SCIENCE

11.	Assistant Professor of Pharmacology	—One post (Reserved for S.C./S.T./D.T. & N.T.).
12.	Assistant Professor of Pathology	—One post (Reserved for S.C./S.T./D.T. & N.T.).
13.	Assistant Professor of Bacteriology	—One post (Reserved for S.C./S.T./D.T. & N.T.).
14.	Assistant Professor of Physiology	—One post
15.	Pathologist	—One post
16.	Assistant Professor pf Anatomy	—One post

(III) FACULTY OF FISHERIES

17.	Assictant Professor of Fisheries Engineering	—One post

(IV) OTHER POSTS

18.	Assistant Engineer (Civil)	—One post (This post is to be filled in for a limited period upto 20-11-1983 only)
19.	Superintendent (Office Superintendent)	—Three posts (One post is reserved for S.T.)

PAY SCALES

1.	For the posts at Sr. No. 1 to 6, 8, 9, 11 to 14, 16 and 17.	—Rs. 700-40-1100-50-1600
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QUALIFICATIONS

(1) For the posts at Sr. No. 1 to 16

Ph.D. in the respective subject.

OR

After Master's degree in the respective subject, two years' experience in teaching or research as evidenced by published research-papers or in extension education.

OR

Master's degree in the respective subject with a first class or equivalent C.G.P.A. either at Bachelor's degree or Master's degree level.

Note :—(i) For the post at Sr. No. 3 the respective subject means Ph.D./Master's degree in any branch of Veterinary Science.

(ii) For the post at Sr. No. 6 the respective subject is Agril. Botany.

(iii) For the post at Sr. No. 15 the respective subject is Veterinary Pathology/Bacteriology/Parasitology,

(iv) For the post at Sr. No. 7 the respective subject is Animal Husbandry and Dairying. For this post, a basic degree in Agriculture is required.

(v) For the post at Sr. No. 16 the respective subject is Veterinary Anatomy.

(2) For the post at Sr. No. 17

Ph.D. in Fisheries Science/Zoology/Marine Biology with thesis on Fisheries or Marine Biological problem.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, two years' experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research-papers or in extension education.

OR

Master's degree in Fisheries Science/Zoology/Marine Biology with a first class or equivalent C.G.P.A. either at Bachelor' degree or Master's degree level.

DESIRABLE

Experience in Fisheries Engineering.

(3) For the post at Sr. No. 18

Degree in Civil Engineering of any recognised University with five year's experience in the field of Buildings and Road project works. Experience in R.C.C. works will be preferred.

OR

Diploma in Civil Engineering of a recognised Institution with twelve years' experience in the field of Buildings and Road Project Works. Experience in R.C.C. Works will be preferred.

(4) For the post at Sr. No. 19

Bachelor's degree with total seven years' experience in office work under the State Government/Semi-Government/Central Government/Educational Institute, out of which three years' experience should be in the immediate lower grade such as Assistant Superintendent.

OR

S.S.C. with total ten years' experience in office work under the State Government/Semi-Government/ Central Government/Educational Institute, out of which three years' experience should be in the immediate lower grade such as Assistant Superintendent.

NOTE

1. Maximum age-limit as on 12-3-1982 will ordinarily be 35 years for the posts mentioned at Sr. No. 18 and 30 years for the remaining posts. Maximum age-limit is relaxable upto 5 years in deserving cases at the discretion of the University. The age-limit is not applicable to persons already employed in this University.
2. Age relaxation for candidates belonging to S.C./S.T./D.T. & N.T./O.B.C. will be as per the State Government Rules.
3. The pay scales of the above posts carry allowances admissible as per the Rules of the University.
4. If response from highly qualified and more experienced candidates is adequate, those with less qualifications or experience may not be called for interview even though they fulfil the minimum qualifications for the posts.
5. The fact that the posts are advertised does not mean that all the posts will be filled-in.
6. Applications to be received through proper channel must reach the University Office within 15 days from the last date of submission of the application.
7. The posts at Sr. No. 8, 9, 10 are sanctioned by the Indian Council of Agricultural Research for a limited period.
8. The number of posts may be increased or decreased.
9. Selected candidates can be posted or transferred at any of the Campuses/Centres under the jurisdiction of the University.
10. Nomenclature of the posts can be changed by the University as and when need arises.
11. Incompleteapplications and applications received after the last date shall not be taken into consideration.
12. The applicants should satisfy all the requirements such as qualifications, experience on or before **12th March, 1982**.
13. Mere eligibility does not vest any right on the candidate for being called for the interview.

Canvassing in any form will completely disqualify a candidate for employment under this University.

P. S. Sawant
REGISTRAR

OSMANIA UNIVERSITY

HYDERABAD-500 007. (A.P.)

Advertisement No. 1/82

1st February, 1982

Applications, in the prescribed form, together with the registration fee of Rs. 5/- through M.O./I.P.O./Challan 'A'. are invited for the following posts at the P.G. Courses at District Centres, and other posts in the University Service, so as to reach the undersigned on or before **23rd February, 1982** :

I. P.G. Centre, Mirzapur

1. Professor of Chemistry (Physical)...One
2. Reader in Chemistry (Organic) ...One
3. Lecturer in Chemical Technology ...One
4. Lecturer in Chemistry (Physical/Organic)...Two

II. P.G. Centre, Godavarikhani
5. Professor of Physics...One

III. P.G. Centre, Kothagudem
6. Reader in Geology...One

IV. P.G. Centre, Bhiknur
7. Professor of Chemistry (Organic) ...One
8. Reader in Chemistry (Agro-Chemicals and Fertilizers) ...Two
9. Lecturer in Chemistry (Physical) ...One

V. Kothagudem School of Mines, Kothagudem
10. Lecturer in Civil Engineering...One
11. Lecturer in Mechanical Engineering...One
12. Lecturer in Mining Engineering ...One

VI. University and Constituent Colleges
13. Reader in Economics
14. *Senior Research Associate (Economics)*
15. Research Associate (Economics)
16. Lecturer in Political Science
17. Lecturer in Business Management
18. Lecturer/Assistant Astronomer

VII. Centre for Planning & Development Studies (Economics)
19. Senior Research Officer
20. Senior Research Investigator (Temporary but likely to continue).

(ii) Relaxation in age to the extent of five years may be granted to candidates belonging to SCs, STs and BCs for the posts of Lecturers only.

(iii) The teachers of affiliated colleges who have put in at least five years service in any of the college affiliated to the Osmania University be given relaxation in age to the extent of five years.

(iv) Age relaxation can be considered in deserving cases.

14%, 4% and 25% reservations are made for SCs, STs. and BCs respectively only in case of Lecturers.

Application forms can be had from the Director, Department of Publications and University Press, Osmania University, Hyderabad-500007, A.P., on payment of **Rs. 4.50** in person or by money order or by a postal order UNCROSSED made payable to the Director and by sending a self-addressed envelope (11½ x 26½ cms) duly stamped for ordinary or registered post.

Full particulars can be obtained on requisition from the Director, Osmania University Press, **free of cost**, by sending a self-addressed stamped envelope.

	Age :	**Scale of Pay :**
Professor	Not above (50) yrs.	Rs. 1500-2500
Reader/Sr. Res. Assot/Sr. Res. Officer.	Not above (40) yrs.	Rs. 1200-1900
Lecturer/Res. Assot/Sr. Res. Investigator/Asst. Astronomer.	Not above (35) yrs.	Rs. 700-1600.

Note :

(i) Age limit does not apply to the employees of this University.

B. Ramachandra Reddy
REGISTRAR

NAGARJUNA UNIVERSITY

NAGARJUNANAGAR

Advertisement No. NU/Estt. /TS/81-82
Dated : 5-2-1982

Applications are invited in the prescribed form for the following posts in the University Service on or before **6-3-1982**.

Sl. No.	Post & Department	No. of Posts	Specialisation
	Nagarjuna University College, Nagarjunanagar		
1.	Professor in Ancient History & Archaeology	ONE	Prehistoric, Protohistoric and Historical Archaeology, Excavation and Exploration of Archaeological sites in Andhra Pradesh
2.	Professor in Law	ONE	Labour Law
3.	Reader in Law	ONE	Taxation/Company Law
4.	* Lecturers in Law	THREE	Torts/Criminal Law/Administrative Law/Jurisprudence
5.	** Lecturer in Statistics	ONE	—

* Out of Three, One reserved for Scheduled Caste and One reserved for Scheduled Tribe.

** Reserved for Scheduled Tribe.

SCALES OF PAY

Professor : Rs. 1500-60-1800-100-2000-125/2-2500
Reader : Rs. 1200-50-1300-60-1900
Lecturer : Rs. 700-40-1100-50-1600

All the above posts carry D.A. etc., at the University Rates.

Six copies of prescribed application forms and other particulars can be had from the Registrar, Nagarjuna University, Nagarjunanagar-522 510, A.P. on payment of **Rs. 6/-** by State Bank of India Challan/Demand Draft-Crossed Indian Postal Order (*Payable at the Nagarjuna University Campus* Post Office only) of the said value drawn in favour of the Registrar, Nagarjuna University, Nagarjunanagar-522 510, Andhra Pradesh.

The University reserves to itself the right to fill or not to fill any or all the above posts and to appoint candidates to posts lower than the ones for which they have applied. Defective and late applications will be rejected.

Candidates called for interview have to attend the same at their own expenses.

K. Anjanappa
REGISTRAR

SAMBALPUR UNIVERSITY

JYOTI VIHAR : BURLA SAMBALPUR

Advertisement No. 2345/Estt. II
Dated 25 1.82

Applications in the prescribed form are invited for the following teaching posts in the University P.G. Departments at Jyoti Vihar, Burla, University College of Engineering, Burla :—

(A) University P. G. Departments, Jyoti Vihar, Burla.

(I) 1. Professor of Home Science — One
2. Professor of Statistics — One

(II) 1. Reader in Home Science — One
2. Reader in Statistics — One
3. Reader in Library & Information Science — One
4. Reader in History — One
5. Reader in English — One (Temporary, likely to continue)

(III) 1. Lecturer in Economics — One
2. Lecturer in History — Two
3. Lecturer in Oriya — One
4. Lecturer in English — One (Leave Vacancy)

(Applicants who have applied for the post of Lecturer in Oriya in response to this office advertisement No. 7475/Estt. II dated 2.5.1981 need not apply again).

(B) University College of Engineering, Burla.

1. Lecturer Department of Electronics and Telecommunication Engineering—Three
2. Lecturer in Mechanical Engineering—Two (One substantive & one temporary)

Scale of Pay

1. Professor: Rs 1500-60-1800-100-2000-125/2-2500/-
2. Reader : Rs. 1200-50-1300-60-1900/-
3. Lecturer: Rs. 700-40-1100-50-1600/-

The posts carry usual benefits as per the rules of the University.

For 'A' above.

Qualification : (Professor)

(i) A consistently good academic record with first or high second class Master's Degree in the concerned subject or equivalent foreign degree with Grade B+ or 55% marks which may be relaxed in the case of candidates otherwise found suitable.

(ii) Good academic record with a Doctorate Degree or equivalent published work

(iii) An eminent scholar with published work of high quality and actively engaged in research.

(iv) Minimum experience of ten years in teaching and/or research out of which at least five years must be in teaching at Post-graduate level as a full time teacher.

(v) Experience in guiding research at Doctoral level. A Professor may be appointed on contract basis for a specified period.

READER

(i) A consistently good academic record with first or high second Class Master's Degree in the concerned subject or equivalent foreign degree with Grade B+or 55% marks which may be relaxed in case of candidates otherwise found suitable.

(ii) Good academic record with a Doctorate Degree or equivalent published work.

(iii) Evidence of active participation in research.

(iv) Eight years' experience of teaching and/or research out of which at least five years shall be as Lecturer in the University P.G. Departments/College at Honours/P.G. Level.

LECTURER

(i) A consistently good academic record with first or high Second Class Master's Degree in the concerned subject or equivalent foreign Degree with Grade B+or 55% of marks which may be relaxed in case of candidates holding a Ph.D. degree.

(ii) A Doctorate Degree or published work of equivalent standard. In case a suitable candidate possessing a Doctorate Degree or equivalent published work is not available, a person possessing a consistently good academic record (due weightage being given to M Phil or equivalent degree or research work of quality) may be appointed on the condition that he will obtain a Doctorate Degree or produce evidence of published work of equivalent standard within five years of his appointment, failing which he will not be entitled to further increments until he fulfils this requirement.

Qualification For (B) above.

(a) Master's degree in the appropriate field of Engineering/Technology.

(b) Consistently good academic record with a Bachelor's degree in Engineering/Technology with 65% of marks or above at Bachelor's degree and/or 60% marks or above at Master's degree level.

(c) One year relevant professional experience outside academic/research institutions.

Provided that in case suitable candidates possessing above qualifications and experience are not available candidates with first class Bachelor's Degree and good academic career may be appointed on condition that they have to obtain the desired qualifications and experience within a period of five years otherwise no future increment will be granted until the above qualifications and experience are obtained.

Specialisation

[illegible]

ments.

Reader in History—Archaeology or equivalent work in the field of collection of antiquities and anchaeological excavation.

Reader in Lib. and Information Science : Information Science.

Reader in English—(i) Linguistics and teaching of English or (ii) Comparative literature, Languages of Oriya, Sanskrit and Greek.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of **Rs. 15/- (Rupees fifteen)** only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of **Rs. 15/-** payable to the Finance Officer, Sambalpur University, Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth **Rs. 3.30 P.** affixed to it with the words **"APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY"** superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the office of the University at Jyoti Vihar, Burla, Sambalpur (Orissa) is **27.2 82.** The candidate will be required to appear for an interview before a Selection Committee at their own expenses.

N. Mohapatra
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR
ADVERTISEMENT NO. 5/82

Applications are invited for the following positions for Senior Technical Assistant in Material Science Prog. and Mech. Gr. 'B' for Graphic Arts Section of the Institute :

Sl. No.	Name of post and scale	No. of posts	Prescribed qualifications and experience
1.	Senior Tech. Asstt. in Material Science Programme in the scale of pay of Rs. 550-25-750-EB-30-900.	One	M. Sc. degree in Physics or Chemistry plus two years' experience preferably in any of the following areas of Material Science :— (i) Thin Film/Electronic Materials (ii) Magnetic Materials. **OR** B Sc. degree/diploma in Engineering plus eight years' experience preferably in a research laboratory concerning any of the aforesaid areas of Material Science.
2.	Mechanic Gr. 'B' (Lino-Operator/Proof Reader) in Graphic Arts Section in the scale of pay of Rs. 350-8-370-10-400-EB-10-480.	Two (One post is reserved for S.C. candidate)	**Essential** High School+ITI certificate+3 years' relevant experience. **OR** 8th Class+ITI certificate+6 years' experience. **Desirable** **For Mech. Gr. 'B' (Lino-Operator)** Intermediate+5 years relevant experience as Lino-Operator in some good reputed Printing Press or Govt. organisation. **OR** High School+Diploma in Printing (Letter Press+1 year's experience. **For Mech. Gr. 'B' (Proof-Reader)** Intermediate + 5 years of relevant experience as Proof Reader. **OR** High School + Diploma in Printing Technology (letter press) + 1 year's experience as Proof Reader.

The above posts are permanent and carry retirement benefits in the form of CPF Scheme or CPF-cum-Gratuity Scheme or G.P.F.-cum-Pension-cum Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to Central Government employees stationed at Kanpur.

Applications against the post of Senior Technical Assistant should be made on the prescribed form obtainable free of cost from the Asstt. Registrar R & A), Recruitment Section, Room No. 483, Faculty Building of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size accompanied by an Indian Postal Order of **Rs. 7.50 (Rs. 1.87 for S.C./S.T. candidates)** and for the posts of Mechanic Gr. 'B' should be made on plain paper, stating date of birth/age, qualifications, experience, whether member of SC/ST community, pay and present scale of the post now held and other particulars alongwith true copies of certificates, and accompanied by an Indian Postal Order for **Rs. 3/- (Rs. 0.75 paise for Scheduled Caste/Scheduled**

(Contd. on page 164)

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No 4/82

Applications are invited for the posts of Laboratory Superintendent in Glass Blowing Facility and Microanalytical Facility of the Department of Chemistry.

Pay Scale

Rs. 1100-50-1600

Number of Posts

Two (One each in Glass Blowing and Microanalytical Facility)

Both the posts are Reserved for Scheduled Caste/Scheduled Tribe candidates.

Qualifications and experience :

Glass Blowing Facility

Minimum

1. An expert glass blower preferably a graduate in science and be trained in a recognised glass-blowing centre. A minimum of 25 years of experience in glass blowing of which a substantial portion must be in managerial capacity of well equipped glass blowing facility.
2. **Desirable**
   Proven ability to design and fabricate glass apparatus for sophisticated research purposes and to train personnel in glass blowing.

Microanalytical facility

1. **Minimum**
   A graduate degree in science or equivalent education. Training in microanalytical techniques from an established microanalytical laboratory of National Laboratory or University.
   Atleast 20 years of experience in microanalysis, which includes the analysis of Carbon, Hydrozen, Nitrogen inorganic compounds
   Atleast 10 years of experience in the management of a microanalytical facility.
2. **Desirable**
   Proven ability to develop modern microanalytical techniques and familiarity with the use of automatic analysis (Carbon, Hydrogen and Nitrogen).
   Ability to train and supervise technicians for microanalysis.
   Maintenance and operation of related instruments such as UV-Visible and IR Spectrometers.

The posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF--cum-Pension-cum-Gratuity Scheme, as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size. **Application should be accompanied by a postal order for Rs. 1.87.**

Applicants who are employed in a Government/Semi-Government organization or Institutions should send their applications through proper channel, else they will be required to produce a 'No Objection Certificate' from their employers at the time of interview.

Applications should reach the Registrar, Indian Institute of Technology, Kanpur IIT Post Office, Kanpur-208016, U.P. (India) on or before **March, 15, 1982.**

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 16/81-82

Applications on the prescribed form are invited for the following posts.

Faculties of Arts, Science, Social Sciences, Commerce and Law.

1. **Professor**

Scale of pay

Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.

(i) **Professor of Urdu, Department of Urdu.**

Qualifications

- (a) A first or high second class Master's degree in the subject concerned of an Indian University or an equivalent foreign qualification;
- (b) A research degree of a doctorate standard or published work of a high standard; and
- (c) Atleast 10 years experience of teaching post-graduate classes and guiding research.

Readers

Scale of Pay

Rs. 1200-50-1300-60-1900 plus allowances.

- (i) Reader in Political Science (International Organisation), Department of Political Science.
- (ii) Readers in Mathematics (One permanent & 2 temporary posts) Department of Mathematics.
- (iii) Readers in Commerce (One permanent and one temporary post), Department of Commerce.
- (iv) Readers in Law (two temporary posts), Deptt of Law.
- (v) Reader in History (Modern Indian History) Department of History.
- (vi) Reader in Urdu (Comparative Literature) (temporary but likely to become permanent) Department of Urdu.

Qualifications

1. **Essential**
   - (a) A first or high second class Master's degree in the subject concerned of an Indian University or an equivalent foreign qualification ;
   - (b) A research degree of a doctorate standard or published work of a high standard ; and
   - (c) Atleast five years experience of teaching post-graduate classes and some experience of guiding research

AIU Library

II. **Desirable**

For the post of Reader in Urdu (No. vi).

Knowledge of World Literature. Knowledge of Western Criticism/ Knowledge of the Persian/Arabic/ Sanskrit.

III. **Lecturers**

Scale of pay

Rs. 700-40-1100-50-1600 plus allowances.

- (i) Lecturer in Political Science, Deptt. of Political Science.
- (ii) Lecturer in Economics (temporary), Deptt. of Economics.
- (iii) Lecturer in Psychology (temporary), Women's College.
- (iv) Lecturer in Education, Department of Education.
- (v) Lecturer in Mathematics, Deptt. of Mathematics.
- (vi) Lecturers in Chemistry (Three permanent & one temporary post), Department of Chemistry.
- (vii) Lecturer in Persian, Department of Persian.
- (viii) Lecturer in Telugu, Department of Hindi.
- (ix) Lecturer in Sociology, Department of Sociology.
- (x) Lecturer in Urdu, Department of Urdu.
- (xi) Lecturer in Urdu, Women's College.

Qualifications

1. **Essential**
   - (a) A Doctor's degree or research work of an equally high standard ; and
   - (b) Consistently good academic record with first or high second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided further that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing he will not be able to earn future increments until he fulfils these requirements.

II. Desirable

For the post of Lecturer in Education (S. No. iv)

(1) A few years experience of teaching in a training College/Department of Education.

(2) Master's Degree in Hindi, or specialisation in teaching of Hindi at B.Ed. level and/or Hindi offered as an optional subject at B.A. level.

For the post of Lecturer in Telugu (S.No. viii)

M.A. Degree in Hindi.
Some teaching experience of Degree Classes.

For other posts of Lecturers (S.No. i, ii, iii, v, vi, vii, ix, x, xi)

(1) Teaching experience of degree/post-graduate classes.

(2) Published work in reputable journals.

Faculty of Theology

1. Reader

Scale of Pay : Rs. 1200-50-1300-60-1900-plus allowances.

(i) **Reader in Sunni Theology (temporary but likely to become permanent), Department of Sunni Theology.**

Qualifications

I. Essential :

1. A first or good second class Master's degree in Sunni Theology. Arabic or Islamic Studies or its equivalent foreign degree or a Fazil of a well reputed Madrasah in India or abroad.
2. Atleast five years experience of teaching post-graduate classes in a University or equivalent higher class in a College or a well-known Madrasah.
3. Ph.D. degree or published scholarly work.

II **Desirable :** Good knowledge of Arabic and adequate knowledge of English.

Faculty of Engineering and Technology

I. Readers

Scale of Pay : Rs. 1200-50-1300-60-1900-plus allowances.

(i) Reader in Civil Engg. (Foundation Engg.) ZH Engg. College.
(ii) Reader in Civil Engg. (Soil Mechanic) ZH Engg. College.
(iii) Reader in Civil Engg. ZH Engg. College.

Qualifications : Good academic record with a Doctor's degree in the relevant field.

About 5 years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research/Published work of a high order either in the institution or in an industry.

OR

In the case of persons to be recruited from industry or professional field, candidates should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

2. Lecturer

Scale of Pay : Rs 700-40-1100-50-1600-plus allowances.

(i) **Lecturer in Mech. Engg. (Draftsmanship Course (temporary) University Polytechnic.**

Qualifications

(a) Master's degree in appropriate field in Engineering/Technology.

(b) Consistently good academic record with a Bachelor's degree in Engg./Technology. First class at Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic/research institutions.

Having regard to the requirements of emerging fields of Engineering and of developing inter-disciplinary programmes, the requirements of Engineering technology degrees may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increments, until he fulfils this requirement.

Faculty of Medicine

1. Readers

Scale of Pay : Rs 1200-50-1300-60-1900 plus allowances

(i) **Reader in Microbiology, Department of Microbiology.**

Qualifications : M.D. (Bacteriology) M.D. (Microbiology) M.D. (Bacteriology with Pathology) M.D. (Pathology & Bacteriology) M.Sc. (Bacteriology)/M.Sc. (Microbiology) Ph.D. (Bacteriology) Ph.D. (Microbiology) D.Sc. (Bacteriology)/D.Sc. (Microbiology).

Teaching/Research Experience

As Lecturer in Bacteriology for three years in a Medical College.

(ii) **Readers in E.N.T., Department of Surgery.**

Qualifications : M.S. (Oto-Rhino-Laryngology) Speciality Board of Oto-Rhino-Laryngology (USA)
F.R.C.S. (ENT)

Teaching/Research Experience

As Lecturer in Oto-Rhino-Laryngology for three years in a Medical College.

2. Lecturers

Scale of Pay : Rs 700-40-1100-50-1600 plus allowances.

(i) **Lecturer in Anaesthesiology, Department of Surgery.**

Qualifications : M.D. (Anaesthesiology)/M.S. (Anaesthesiology) Speciality Board of Anaesthesiology (USA)
F.F.A.R.C.S. (By examination)

Teaching, Research Experience

The requisite recognised post-graduate qualifications in the subject and 3 years teaching experience as Tutor / Registrar / Resident in Anaesthesiology/Anaesthetist of which one year should be after post-graduate qualification.

(ii) **Lecturer in E.N.T. Department of Surgery.**

Qualifications : M.S. (Oto-Rhino-Laryngology) Speciality Board of Oto-Rhino-Laryngology (USA)
F.R.C.S. (ENT)

Teaching / Research Experience

The requisite recognised post-graduate qualification in the subject and 3 years teaching experience as Tutor/Registrar/Resident in Oto-Rhino-Laryngology of which one year should be after postgraduate qualification.

(iii) **Lecturer in Radiology (temporary), Department of Radiology.**

Qualifications : M.D. / M.S. (Radiology) Speciality Board of Radiology (USA)

Teaching / Research Experience

The requisite recognised post-graduate qualification in the subject and 3 years teaching experience as Tutor/Registrar/Resident in Radio-Diagnosis of which one year should be after post-graduate qualification.

(iv) **Lecturer-cum - Paediatric Surgeon, Department of Paediatrics**

Qualifications : M.Ch. (Paediatric Surgery)

Teaching/Research Experience

The requisite recognised postgraduate qualification in the subject and three years teaching experience as Tutor/Registrar/Resident in Paediatric Surgery or in a Paediatric Surgical Unit of the Department of Surgery of which one year should be after post-graduate qualification.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway Fare only

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees) either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **15th March, 1982**. Incomplete applications and those received late may not be considered.

Mahmood Ali
REGISTRAR

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Deen Dayal Upadhya Marg, New Delhi-110002. Grams : UNIBOARD. Phone : 276504 & 273037.
Printed at NEW INDIA PRESS, Connaught Circus, New Delhi-110001.

University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH MARCH 1, 1982

Rao Birendra Singh, Union Minister for Agriculture, delivering the convocation address at the Tamil Nadu Agricultural University, Coimbatore.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

A.I.U. PUBLICATIONS

		Rs.
1.	Universities Handbook—1981-82	180.00
2.	Handbook of Medical Education—1982	12.00
3.	Handbook of Engineering Education—1982	12.00
4.	Handbook of Management Education—1982	12.00
5.	Association of Indian Universities—History	50.00
6.	Higher Education and Development	30.00
7.	*University Finance—A Statistical Profile*	*50.00*
8.	Enrolment in Higher Education—A trend analysis	20.00
9.	Resource Allocation on Education—Research Studies	20.00
10.	Research in Economics of Education—India	10.00
11.	Institutional Costs of University Education	40.00
12.	Three Aspects of University Education	50.00
13.	University and College Finances—Seminar Papers	50.00

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

14.	Social Sciences	1857-1970	50.00
15.	Humanities		100.00
16.	*Physical Sciences*		125.00
17.	Biological Sciences		100.00

Note : Also available in paperbacks in individual discipline

18.	Social Sciences & Humanities—1970-75	150.00
19.	Physical Sciences—1970-75	120.00
20.	Biological Sciences—1970-75	120.00
21.	Social Sciences & Humanities—1975-76	50.00
22.	Natural & Applied Sciences—1975-76	90.00
23.	Social Sciences & Humanities—1976-77	70.00
24.	Natural & Applied Sciences—1976-77	120.00
25.	Social Sciences & Humanities—1977-78	90.00
26.	Natural & Applied Sciences—1977-78	100.00
27.	*Social Sciences & Humanities—1978-79*	90.00
28.	Natural & Applied Sciences—1978-79	125.00
29.	*Social Sciences and Humanities 1979-80*	90.00
30.	Natural and Applied Sciences 1979-80	In Press

ON EXAMINATONS

31.	Management of Examinations	35.00
32.	Towards Better Questions	5.00
33.	Monograph on *Grading*	5.00
34.	Monograph on Question Banking	5.00
35.	Monograph on *Internal Assessment*	6.00
36.	Monograph on Test & Item Analysis	10.00
37.	Monograph on Question Banking in English Language & Literature	6.00
38.	Monograph on Practical Examinations	9.00
39.	Monograph on *Semester System*	14.00
40.	Research Abstracts—Parts, I, II & III	each 6.00
41.	Research *Abstract—Part IV*	*In Press*
42.	Monograph on Moderation of Examination Results	5.00
43.	Monograph on Syllabus Analysis and Restructuring	In Press

STATUS REPORTS ON

44.	Grading in Universities	35.00
45.	Question Banking in Universities	25.00
46.	Internal Assessment in Universities	25.00
47.	Internal Management in Universities	30.00
48.	Preparations Made by Universities to Receive 10+2 Input	30.00

QUESTION BANK BOOK SERIES

Undergraduate level

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50.	Physics	25.00
51.	Chemistry	40.00
52.	Zoology	30.00
53.	Botany	25.00
54.	History	20.00
55.	Geography	20.00
56.	Psychology	35.00
57.	Economics	30.00
58.	Commerce	30.00
59.	Political Science	25.00
60.	Foods & *Nutrition*	25.00
61.	Sociology	30.00
62.	English Language & Literature	18.00
63.	Physiology	30.00
64.	Pharmacology	35.00
65.	Automobile Engineering	35.00

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IN THIS ISSUE

Education and Political System 181

Convocation

Thrust in Indian Agriculture 183

Campus News

Seminar on socio-cultural dimensions of development 184
MPhil programmes at Agra 184
Indo-Soviet seminar on archaeology 185
Coal mining seminar suggests modernisation 186
Seminar on development journalism 187
Four more universities for Bihar 188

Agriculture

Horticultural research 189
Seed testing workshop 189
International scientists group at HAU 190
Breakthrough in rice research 190
Development of agricultural aviation 191

Science & Technology

Institute for computer personnel 191
Research in Progress 192
Theses of the Month 193
Current Documentation in Education 197
Classified Advertisements 199

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Editor : M.S. Ramamurthy

International Conference on Education

Five hundred and two delegates from 125 countries—of whom 42 were ministers and 22 deputy ministers of education—as well as 85 representatives and observers from three liberation movements, 44 organizations of the United Nations system and intergovernmental and non-governmental organizations participated in the 38th session of the International Conference on Education (ICE), which was held in Geneva from 10 to 19 November, 1981.

The agenda of this important meeting included three main themes: the customary examination of major trends in education around the world, particularly during the past two years, the future development of education in the light of global needs and world problems, and lastly, the interaction between education and productive work, constituting the "special theme" which is a regular feature of all ICE sessions.

Speaking at the opening of the conference, the Director-General referred to youth unemployment in these terms: "If this situation should continue unchecked, if unemployment should be the fate of more and more young people in the prime of life, there is every reason to fear that we shall see exceptionally serious upheavals, tensions incomparably greater than those that we are at present striving more or less successfully to hold in check, and to speak plainly, a new form of violence likely to have a severe impact on many societies. It seems essential to reconsider some of the types of training provided by educational institutions in order to adjust them more closely to realities and needs."

After analysing the major trends in education, the conference found it probable that most of the major problems of today would continue to be felt over the next twenty years. Broadly, it considered that the democratization of education, both in making it more generally accessible and in securing effectively equal chances of success, as well as the eradication of illiteracy and the provision of universal primary education where it has not yet been achieved, would remain priority objectives.

At the closing ceremony, the Director-General reviewed the general outline of the debates and the principal conclusions of the conference. He stressed the latter's resolve, taking account of specific situations, to do away with educational disparities between rural and urban zones, and with those inequalities that afflict certain deprived groups of people in large urban areas or certain minorities. The conference, he said, had pointed to the need for continuing action to ensure effective equality for girls and women as regards access to education and chances of success and to develop pre-school education.

Better training for work, continued Mr. M'Bow, was essential in so far as it might help to solve the problem of youth unemployment, the extent of which, in certain countries, was a major factor in the demoralization of the young. Among the chief methods of achieving that objective were the development and improvement of science teaching, technical and vocational education and vocational counselling.

Regarding the crisis of values that is partly to blame for the mood of depression shared by many young people, most of the delegates described the measures taken and outlined those considered necessary to ensure that education inculcates moral, ethical or religious values, nurtures aesthetic appreciation and develops all aspects of the personality. In this connexion, the participants emphasized the importance of culture and the various aspects of national identity in the content of education—which, in certain countries, involves the use of the mother tongue or the national languages as media of instruction—and of drawing on traditions which heighten spiritual, human and social values.

Lifelong education, said Mr. M'Bow, already applied not only to occupational upgrading and retraining, but also to the continuing enrichment of general culture and the use of leisure time for educational purposes. In this context, education for older adults was increasingly regarded as one of the new functions of the university. The accomplishment of all these tasks was contingent on greater efficiency in the educational system and the reduction of high wastage rates.

The conference highlighted the growing contribution that education was likely to be required to make, in the next few decades, towards the solution of the major problems of the day; establishment of a climate of international understanding conducive to peace and disarmament, and development, which implies the reduction of disparities especially through the establishment of a new and more equitable world. In this connexion, the Director-General declared to the delegates: "You are agreed in thinking that one of the essential functions of education should henceforth be to contribute to change and to equip every individual to live with it and help it along. But for this purpose, it is your view that education itself must undergo change" through a modification of its contents and by taking advantage of all the resources of educational technologies, information processing and the media.

Mr. 'Bow considered it very significant that, despite the differences in situations and the varying views expressed, the delegations should have been agreed in thinking that stronger interaction between education and productive work or, more generally, socially useful work represents a necessity of our time, and is both of undeniable educational value and, in certain respects, of economic value too, if not immediately then at least in the longer term.

"The reference to production", continued Mr. M'Bow, "seems to me to emphasize the fact that education, especially in its final stages, should instil into young people an awareness of the efforts involved in the production and management of social goods and should enable them to better understand the linkage between theory and practice. In my opinion, the advantage of broadening education to include, for example, activities which lead to the making of a finished product, be it agricultural, hand-crafted or industrial, even if that product is not intended for sale in the market-place, is that the young person concerned is placed in an authentic work situation. He or she learns to appreciate the meaning of work well done, meeting the specific requirements of a particular field and with the conscientiousness and sense of responsibility that you all feel is so important to develop. By the same token, the young person learns the true value of work in the productive sector, which, owing to the prejudice and mutual ignorance inseparable from the age-old dichotomy between intellectual and manual work, all too often has little attraction for young people. In other words, we have here an invaluable contribution to an ethic for the modern world—and you all felt that such an ethic was essential—in which individual values and those essential to society come together."

The conference adopted by consensus a Recommendation concerning the interaction between education and productive work intended mainly for ministries of education. It lays stress on the principal questions on this subject which were discussed during the debates, and consists of a preamble and three parts entitled: underlying principles, programmes and measures, and regional and international co-operation. [*Reprinted from UNESCO News*, No. 65, 7 December 1981] □

Education and Political System

Brij Kishore Jha*

The relationship between education and the political system is not quite clear. It is not a relationship readily amenable to analytical rigour because in many instances there are intervening variables between education and polity which are themselves subject to multiple determinants. Here, however, an attempt is made to relate education to three syndromes of political development, namely, political socialization, political recruitment, and political integration because these three processes of the political system have a fairly clear relationship to education.

Political socialization

Given the complexity of situation and non-availability of all relevant data, it is only at the highest level of generalization that statements about the relation of education to political socialization process in India can be made. At that level, at least, following general observations often inconclusive or contradictory may be made.

First, there appears to be a positive correlation between education and political cognition and participation because education paves the way for awareness of governmental impact, political information, range of political opinions, subjective political competence and political participation. The uneducated man or the man with limited education is a different political actor from the man who has achieved a higher level of education. Education presumably broadens men's outlooks, enables them to understand the need for norms of tolerance, restrains them from adhering to extremist and monistic doctrines, and increases their capacity to make rational electoral choice.

Second, a proposition may also be advanced that the longer a student stays in college and university the more he expresses cynical views on politics and a disinclination to take part in civic or political affairs.

Third, the movement for growth, reform and democratization of education has carried lethal implications for political socialization. The educational system itself is producing the forces which seem to be corroding the values upon which the social order rests. All attempts for educational reform, meant for using education to improve the lives of individuals have so far resulted in rejection of prevailing values and beliefs, including more particularly the rejection of such notions as honesty, duty and discipline. Since each of these notions implies some restriction upon the individual's freedom to grow his hair as he pleases, it seems progressive to be rid of it. Some of the students are moving sullenly with alcohol in their bodies, guns in their hands, and anger and hatred in their hearts. In theory, the university is still regarded as a temple of learning, an abode of ideas and ideals. In practice, it has become the chief recruiting ground of mindless goondas. Thus education explosion in India has produced only hordes of educated nobodies who want to be somebodies and end-up being mischief-making busybodies. It is obvious, therefore, that much of this effort at reform has only created anaemic confusions. The traditional ways are being disrupted by the intrusion of Western ways without much thought being given to the ensuing value conflicts. The anomie which develops presents a very considerable obstacle to the establishing of a political order.

It may, however, be noted, in passing that in India even today family, caste, religion and rural areas are more important and effective as agencies of socialization than education. Limited social mobilization, weak penetration by the national government, discontinuities in the communications system and the absence of mass education are among the many explanations of the continuing pre-eminence of the family and other such agencies in the socialization process. Very high degree of cultural fragmentation also weakens the impact of education on youth's mind.

Furthermore, extremes of poverty and wealth, distinctions of rank unrelated to ability and to services done to the community create temptations difficult for even the properly educated man to resist. Inequality undoes much of the good done by the system of education. It does even more ; it lowers the quality of education. Children are taught to pay lip service to principles which their elders do not expect them to follow in their conduct ; they are taught to be hypocrites. It may, therefore, be hypothesized that where inequality is great, education is unlikely to be good; and where education is not good men soon acquire passions and tastes which lead to inequality.

Above all, many sources supply impressive evidence that the effects of education upon attitude formation and change are most marked when the educational institutions are set off rather sharply from its environment. The weak influence of education in the process of socialization in India is due to the fact that most formal educational institutions in India are neither quite isolated from other agencies nor completely separated from the political arena. Indian universities are no longer the important "islands of separateness" or the "fortresses of knowledge", unassimilable for its function of the search for truth. Teachers and students are no longer withdrawn from the battle cries of the market place into the quiet of laboratory and library.

As a result of all these factors, educational system fails to discharge its powerful role as a political socializer. It has not been possible for it to create a dis-

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tinct cultural milieu for the socialization of the young. Consequently, Indians pass examinations, to become clerks, lawyers, doctors, teachers, engineers, civil servants, but not men. We pass examinations. not for learning anything, but for notifying that we are qualified for employment. Hence, to quote Rabindranath Tagore, "our educated community is not a cultured community, but a community of qualified candidates". This is the nature of political socialization produced by education in India.

Political recruitment

It is commonly believed that in modern achievement-oriented societies education tends to become the master determinant of social mobility because it alone leads to higher occupational achievement and consequently to higher income, upper social status and higher prestige positions and that education is therefore the main, if not the sole, key to political mobility into elite status. This gross summation, stated in bold and simplistic terms, ignores three vital aspects of the issue.

The first is post-independence anti-intellectualism in India. It is said that "the leadership of the intellectuals in new states does not survive the first revolutionary generation". Even if this statement does not express the whole truth in the context of India, it does dramatize an important truth. The truth is that in India the intellectuals with an advanced modern education have been relegated into subordination.

The fact is that the educated are very much entrenched in the bureaucracy and they have been displaced in political arena by the less educated, if not by the uneducated. The pre-independence primacy of the educated minority in Indian politics has been substantially reduced because political power has gravitated towards persons of lower educational attainments who command local power hierarchy. A recent study of an Indian state politics reveals that the influence of rural political elites has become increasingly determinative in the political process as a consequence of modernization. There has been a progressive shift in the geographical base of recruitment. The new rural politicians tend to be vernacular speaking and less educated. They are also more securely rooted in the traditional social structure than were the urban based, educated politicians who constituted the vanguard in political action in the pre-independence period.

The second is the tension between incumbent political elites and new bureaucratic and technical cadres. As the process of modernization increases, it begets new managerial and technical elites who are bound to become even more powerful, assertive, and even competitive with existing political leadership. This cleavage has become particularly pronounced in generalist vs. technocrat controversy in India. Though so far the political leaders have been successful in bringing about a fusional rather than an isolative relationship between bureaucratic and political elites, the emergence of an isolative and politically dysfunctional relationship cannot be ruled out for ever.

The third is the anomic potential of the educated unemployed. In India a gross imbalance has developed between the great expansion in the educational system and the comparatively limited growth in the economy and in the occupational structure. This resulted in a vast increase in the number of unemployment of not only less educated persons but also of such categories as doctors and engineers. The political orientation of such educated unemployed youth is obviously marked by disaffection and alienation and their behavioural disposition is basically anaemic. This marked devaluation of education is bound to sharpen social and political tensions in the days to come.

Political integration

The integrative role of education in nation building and political integration is more or less self-evident. However, in two major aspects educational development is proving to be malintegrative at the present juncture in India. First, it perpetuates the mass-elite gap in India. Children of persons in the upper social strata have greater access to higher education and demographic groups whose members already have more skills, talents, and education have a differential advantage in further development.

Second, it has intensified divisions among different ethnic, regional and parochial groups undermining all sense of national identity. The agitation in Assam and the demand for Khalistan speak volumes for this tendency. A perceptive observer of Indian political scene has rightly observed that "the process of modernization has often intensified group conflicts, as many groups have been brought out of their splendid isolation in the traditional society and made to interact with one another in various emerging modern arenas". Moreover, legislation that gives special assistance to castes and tribes which are considered particularly backward has also encouraged many such communities to organize themselves and put forward their claim for more seats in the legislature, more posts in the administrative services, and more seats in colleges. The prevalence of this phenomenon suggests that in the initial stages at least the spread of education strengthens the anti-modern forces and institutions. Possibly in the long run the education may bridge the gap or reduce social tensions, but at the present juncture of Indian politics it is proving dysfunctional to political integration.

It may be said that the establishment of various regional universities in several parts of the country has contributed more to the growth of regional, local, and parochial forces than the inculcation of the sense of nationalism and political unification. It may, therefore, be surmised that the effect of education upon integration is also a function of the physical location of educational establishments. Hence a proposition may be advanced that whereas the centrality of institutions of higher education in central or capital areas may further the creation of a nationally minded, integrative elite strata, their establishment in regional areas may strengthen ethnicity and regional parochialism.

It is, therefore, clear that the rapid growth of education in India, has so far contributed only to the process of its political decay, rather than its political development. □

Convocation

Thrust in Indian Agriculture

"Recently I had the opportunity of knowing the views of scientists of several foreign countries about the achievements of India and Indian Scientists in the field of agriculture. I am very proud to mention that even the well-developed nations in the world have high praise for our scientists. However, there is no room for any complacency. We will have to do a lot more to cope up with our growing needs. According to 1981 census our population is still growing at an annual rate of 2.23% and as per the population projections made by the Planning Commission recently, in another 50 years our population will be about 1231 million needing about 277 million tonnes of foodgrains at 225 kg. per capita per year. It should not be difficult to produce this quantity of foodgrains since we are now reaping the benefit of only 25 to 30% of the production potential available even at current level of technology.

During the last 3 decades Indian agriculture has made rapid strides. As against total foodgrains production of only 51 million tonnes during 1950-51, the production has gone up to 133 million tonnes in 1980-81. This is because of the record production in rice and wheat. In rice we have been able to produce 56 million tonnes during 1980-81 as against 30.5 million tonnes in 1965-66. Similarly the wheat production has reached a mximum of 36.00 million tonnes as against 12.5 million tonnes in 1965-66. However, it may be pointed out that during 1978-79, the foodgrain production has declined by 15%, production of major oilseeds and sugarcane by 13.00 to 15.6% resulting in overall fall of 12.7% in the agricultural sector. Though we have recovered from this short-fall during 1980-81, this experience has to be considered as an eye opener. In order to prevent such maladies we will have to develop sound policies on irrigation. In this connection, I would like to bring to your notice the 5-pronged strategy suggested in the Sixth Five Year Plan such as :

(a) Conserving rain water in farm ponds, tanks, reservoirs and through watershed management;

(b) Utilising the ground water potential in different parts of the country;

(c) Harnessing surface water resources through major, medium and minor irrigation works;

(d) Utilising the surplus water which goes to the sea through appropriate inter-basin transfer of river water; and

(e) *Intensifying R & D efforts* in the field of solar desalination of sea water and other sources of brackish water.

While we have increased our foodgrains production by almost three times, cotton by 2.5 times, potato by 5 times etc. there still exists a wide gap between the production potential and practical achievement. This is more true in the case of oilseeds and pulses. We have not been able to do much in increasing the productivity of these crops though special efforts are under-way in this direction and break-through is expected before long. We spent annually about Rs 800.00 crores to import edible oils to meet the minimum needs of the people. We have to devote concentrated attention to become self-sufficient in these two items. We have made plans to produce 13 million tonnes of oilseeds and 14.5 million tonnes of pulses by the end of Sixth Five Year Plan. Our targets for sugarcane are 215 million tonnes and cotton 92.00 lakhs bales. The cultivated land being limited and due to rapid growth of population and consequent need of more land for domestic, industrial, commercial and other purposes, land will be a shrinking resource for agriculture. Only the new technologies can replenish this loss.

While the agriculture production during the last 12 years has gone up at annual compound rate of 2.8%, during this plan we envisage an annual growth rate of 4%. Attention is being piad to correct certain imbalances in agricultural development particularly in the ecologically handicapped regions like deserts and drought prone and flood prone areas. Greater attention is being given to production of fruits and vegetables, multiplication and distribution of seeds and planting material and post-harvest technology. Increasing emphasis on improvement of livestock production, dairying, fish production and intensification of forestry development programmes are some of the areas of importance. Considerable emphasis is also given to the development of irrigation and it is expected that an additional area of about 14.5 million hectares wil be brought under the irrigation during this plan period.

While our objectives and goals are laudable, our success in achieving them would depend upon our ability to implement them. This will have to a large extent depend on our ability to develop new scientific technology through intensive research which is field oriented, need-based and time-bound. While there should be continued emphasis on evolving high yielding crop varieties of economic species, our immediate needs of high yielding varieties of oilseeds and pulses should be met by top priority research. We have to look at the problem of breaking barriers to yield

(*Contd. on page* 196)

Seminar on socio-cultural dimensions of development

A three-day seminar on "Development : Socio-Cultural Dimensions" was organised recently by the Department of Sociology, Panjab University.

Inaugurating the seminar, Dr. R.C. Paul, Vice-Chancellor, said India's problem of poverty had aggravated and inequalities widened despite sustained efforts at development mainly because development planning had been guided by economic considerations more rather than by considerations of social issues.

Delivering the keynote address, Prof. M.S. Gore, Director, Tata Institute of Social Sciences, Bombay, said that economic growth could not be achieved without corresponding changes in social, cultural and political facets of life. The goals for which development was sought were set in the context of the dominant social and political values of the time. The establishment of an institutional structure to facilitate savings, investment and production, the technological base required for production could not be conceived except in the context of an articulated or implied ideology. Such an ideology would also determine the strategies adopted for mobilising people's efforts along channels which were expected to lead to development, he added.

Four themes identified for the seminar were: Social development—conceptual and methodological issues, population and development, social structure and development, and culture and development.

Earlier Dr S.L. Sharma, Chairman of the Department of Sociology of the University pointed out that the experience of development planning in the Third World countries during the last few decades had not shown encouraging results, presumably because the socio-cultural dimensions of development had not received due attention of the planners. Elaborating, he said development planning in India had so far used two strategies: sectoral and spatial. The focus of the former had been on the development of such sectors as agriculture, industry, transport, education, health and social welfare. The spatial strategy had concentrated on units such as region, area, city and village. Such an approach had missed out the significance of socio-cultural dimensions.

Campus News

Hydro micro energy systems workshop at Roorkee

The Roorkee University has developed a new way to harness the abundant energy potential in water which could help revolutionise rural energy situation in the country.

In a paper presented at the first international workshop on 'hydro micro energy systems for rural prosperity' held recently Prof. O.D. Thapar, principal investigator of the project, said with the use of commercial pumps, energy in flowing water at a micro level could be harnessed. The new system could dispense with turbines without affecting efficiency, he added.

The system was non-regulaing type which did not require any attendance as the loading on the generator was kept constant by an electronic controller.

The project was carried out by the university with the United States Agency for International Development (USAID) under PL-480 grant of 150,000 dollars over the last one year. According to Prof. J.B. Dubow, the programme director for USAID, a sum of 450,000 dollars more was to come in the next three years for further development and implementation of the project.

Prof. Dubow said such a project was in operation at Potsdam in New York, where the hydro site was feeding 750 kw into the main grid. The cost was as low as one cent per kw hour.

M.Phil programmes at Agra

With effect from this year Master of Philosophy (M.Phil) programmes have been introduced in Mathematics, Physics and Zoology at Agra College, Agra and in Chemistry at R.B.S. College, Agra. These programmes were inaugurated recently by Dr (Mrs) Madhuri R. Shah, Chairman, University Grants Commission. These programmes will be conducted with the help of University Professors and Readers who have been seconded to these colleges.

Last year M. Phil programmes were introduced in Hindi and Linguistics at the K.M. Institute of Hindi Studies and Linguistics, Agra.

The Ordinances for M.Phil provide that there shall be two semesters in the academic session. During the I semester there are two courses including Research Methodology besides Seminars/Tutorials, Plan on dissentation or Project Work or Design Work. Likewise two courses are provided for in the II semester also. In each course 5 periodical tests are to be given. Also there is a term examination at the end of each semester.

M. Phil students are required to (a) attend and participate in atleast six seminars/tutorials (b) conduct at least one seminar and (c) submit a Dissertation or Report on the Project/Work Design Work.

Conference on Indian medicine in health care

A conference was organised at the Institute of Medical

Sciences, Banaras Hindu University on the 'Role of practitioners of Indian medicine in primary health care'.

Dr. Sombhong Kutranon, Regional Adviser on Community Health for South-East Asia of WHO addressed the delegates to the conference. Outlining the role of Indian medicine Dr. Kutranon observed: For governments, the commitment to utilize traditional medical practitioners and traditional drugs in primary health care and elsewhere imply a number of actions. The first would be to incorporate traditional medicine in the training of health teams. Secondly, dispensaries or similar institutions will have to be set up in rural areas, supported by efficient referral services. Thirdly, to ensure the availability of traditional drugs and to pave the way for community self-reliance, the development of herbal gardens in rural areas and of simple manufacturing facilities at appropriate places will need to be encouraged.

Developing traditional medicine, to enable it to gain its proper place, opens up the possibility of carrying out a series of concerted actions which WHO would be ready to support. This would include, in particular, the development of curricula for training traditional medical practitioners, so as to equip them in promotive and preventive health care and enable them to function effectively as members of the health teams at primary health care level. Accompanying the development of curricula would be the preparation of appropriate learning resource materials and the training of trainers.

The conference was expected to be attended by over 250 delegates from all over the country.

Indo-soviet seminar on archaeology

A four-day Indo-Soviet joint seminar on copper, bronze age cultures of India and Central Asia contacts and migrations and Aryan problem was held recently at Allahabad.

Allahabad University Vice-Chancellor, Prof. U.N. Singh, welcomed the guests.

About 40 delegates from various universities, including a ten-member Soviet delegation headed by Academician director, State Hermitage Museum, Leningrad, attended the seminar.

Speakers pointed out that archaeologists had shown that the bronze age cultures did not remain in isolation and that there were links and contacts between some bronze age sites of Central Asia and the borderlands of the Indo-Pak sub-continent. But the problems were to be studied in detail.

Prof. G.R. Sharma, Head of the Department of Ancient History Culture and Archaeology, University of Allahabad and co-director of the Indo-Soviet joint project, said recent works by his department had broken new grounds in the regions of Vindhyas and Ganga valley. It had established a super cultural sequence in the Belan and Son valleys key sequences of India.

He said the excavations conducted over the last two years at the sites of Chopani-Mando, Mahagara and Koldihwa on the banks of the Belan and at Sarai Nahar Rai and Mahadaha, in the Ganga valley, had established a connected sequence from epipalaeolithic to the Neolithic and furnished evidence of transformation of human life from hunting and food gathering to domestication of plants and animals. It presented as an independent and original centre of these transformations, he added.

Prof. Sharma said the discoveries at Kausambi, near Allahabad, had proved to be of major importance for the history of urbanisation fortification city planning and history of art, architecture and sculpture in the Ganga Valley.

The University Grants Commission had selected his department here for developing it into a major centre of advanced research in archaeology and ancient history, he said.

Soviet Academician Piotrovsky presented a set of books about the new findings in his country in the field to Dr U.N. Singh.

UNDP for engineering research education project at Baroda

The United Nations Development Programme (UNDP) has approved for a post-graduate engineering education and research project at Baroda. The estimated cost of assistance planned is to the tune of $1,270,000.

The project will be executed by the United Nations Scientific Educational and Cultural Organisation (UNESCO) and the Government implementing agency will be the Ministry of Education and Culture.

The Government has been making effort towards the development of collaboration between technical institutions and industry and research who have a good theoretical knowledge and a close acquaintance with the problems of industry based on actual industrial experience.

Inspite of considerable attention paid to the development of post-graduate education, there still exists a wide gap between the technologies of the developed countries and the technologies developed in India.

The Faculty of Technology and Engineering is a constituent institution of the Maharaja Sayajirao University of Baroda, which was established in 1949. The faculty programmes are centred on a policy of integrated development of teaching, research, design and development so as to maximise its contribution to the country's development.

The faculty has a very close liaison with the surrounding industries, Government and Semi-Government agencies and local bodies.

However, a need has been felt to supplement institutional facilities for training of high level technical personnel and UNDP assistance has been requested in the areas of water resources and environmental management; fracture mechanics; turbojet propulsion; and microprocessors. This will also help generate self-sustaining research programmes and updated curricula.

The immediate objective is to supplement institutional facilities for training of high level technical personnel by improving and developing curricula, syllabi and faculty with emphasis on design, production and management aspects in the four specialized fields mentioned above. To this end the project will help improve curricula, train faculty, establish laboratories and research facilities and strengthen library facilities.

The UNDP will provide 24 man-months of consultants services, 30 man-months of fellowships under the four disciplines besides equipment. The Government will provide professional counterpart staff and supporting staff, premises with facilities and funds for miscellaneous items. The estimated total value of inputs provided directly by the government to the project in kind is $1,534,700. [*Courtesy*: UN Weekly Newsletter]

Coal mining seminar suggests modernisation

The two day national seminar on "appropriate technology for Indian coal mining by 2000 A.D." held recently at Khammam, Andhra Pradesh called for modernisation of coal mining by acquiring latest technology.

According to the convenor of the seminar the country would have to depend on thermal energy to meet the demands for the next two decades. For this, the production of coal should grow at the rate of 10 to 15 million tonnes a year, he said.

The seminar suggested adoption of open cast mining with high capacity machines and eventual replacement of underground mines with open cast mining.

The seminar observed that there was no dearth for talent either technical and managerial in the country and said the only constraint was finance. The seminar urged the Government to accord due priority to coal mining in view of its necessity in the coming years.

About 150 mining experts from all over the country submitted 44 papers, both theoretical and practical in the seminar, which is first of its kind in the 60 years history of the Collieries.

D.S. Reddi memorial lecture

Urbanisation does not result in a general decline in religious observances but may in fact strengthen them as rural migrants experience anxieties of various kinds in unfamiliar settings and seek to relieve these by dependence on supernatural support, emphasised Prof. T.N. Madan of the Indian Institute of Economic Growth, New Delhi. Delivering the Dr D.S. Reddi Memorial Lecture on "Some Reflections on Secularism" under the aegis of the Osmania University. Prof. Madan said the phenomenal efflorescence of certain religious cults such as Goddess Santoshi Ma and the large following of Sri Sathya Sai Baba point to a salience of religiosity than a decline.

The sociologist point out that religion and language were used as masks to promote political and economic ends by middle class elites who themselves may have had little religious conviction and equally little concern for a particular language. "They were able to manipulate these symbols, because religion and language arouse strong primordial loyalties among the people of the sub-continent". Prof. Madan said intellectuals have a

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(See Rule 8)

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I, M.S. Ramamurthy, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-
Publisher

very special responsibility to examine the problems in secularism and secularisation and suggest changes.

Referring to the role of government, he said for the state all citizens are equal without these citizens being required to renounce their basic religious beliefs. At the same time there is need for the state to promote certain kinds of humanistic values and a general ethos in the important fields like education and politics.

Prof. G. Ram Reddy, Vice-Chancellor, Osmania University presided.

Seminar on development journalism

The Department of Communication and Journalism, of Osmania University, Hyderabad, held recently a seminar on "Role of Development Journalism in Social Change."

Delivering the keynote address to the seminar the Education Minister of Andhra Pradesh advised journalists to shed urban bias and elitist orientation and to reflect the problems and aspirations of rural masses who constituted 'major India'.

Presiding over the function, Prof. G. Ram Reddy, Vice-Chancellor of the University, called for radical changes in the journalism syllabi in Indian universities which, he said, were heavily influenced by the western pattern. He appealed to the press to give more importance to 'social development' rather than 'social crisis.'

The seminar had two sessions —one on "Role of Journalism in Social Change" and the second on "Role of Audio-visual Media". People from the media including AIR and TV, the Administrative Staff College of India, the Central Institute of English and Foreign Languages and others addressed the seminar.

ICSSR research grant to PAU

The Indian Council of Social Science Research has made available a grant of Rs. 50,000 to Dr K.M. Upadhyay of the Department of Business Management of Punjab Agricultural University for research on "Managerial Leadership and Effectiveness of Budgetary Control."

The Project has been approved by the Council for its new approach to interface between Organisation Behaviour and Financial and Accounting techniques. The findings of this research project will be of use to management development in agro-based industries. Initially the project will cover twelve fertilizer and chemical companies, operating in different parts of the country.

Two campuses of NEHU

Dr B.D. Sharma, Vice Chancellor of North Eastern Hill University, Shillong, stated recently that the Kohima and Aizawal Campuses of NEHU will start functioning as independent centres under the charge of two Pro-Vice-Chancellors. The Kohima Campus will hold the Centre of Earth Sciences with geology and allied sciences as its central focus. The Aizawal Campus would be responsible for environmental sciences with forestry as central focus.

The Academic Council of NEHU has also recommended establishment of three centres; for Rural Development at Nagaland, for Educational Technology at Aizawal and a School of Mathematics and Science at Shillong. Postgraduate courses in Public Administration are proposed to be opened at Aizawal and PG Courses in Business Management at NEHU.

Bill to ban capitation fee

Mrs Shiela Kaul, Education Minister, Government of India, told the members of the Parliament recently that the Government proposes to introduce a Bill to create a statutory mechanism to prohibit charging of capitation fees by engineering colleges. She added that the details were being worked out.

There were 56 engineering colleges in the country which charge capitation fee for admission. Thirty-three of them are located in Karnataka, thirteen in Bihar and ten in Andhra Pradesh.

She further said that the exact amount collected per student by these colleges was "difficult to ascertain".

New lecture series

A new lecture series in memory of the Late Shri Prabhakarpant Korgaonkar has been instituted in Shivaji University, from this year.

Prin. Dr. Janardan Waghmare delivered three lectures on "Education and Social Change" on 6, 7 and 8th January. Dr. Waghmare stressed the need for understanding new trends in higher education.

He said that ignorance and poverty can be eradicated through the systematic spread of education in the down-trodden Society. Education is the only media through which social reconstruction can be envisaged, he added. Vice-Chancellor, Shri R.K. Kanbarkar, presided over these lectures.

New varsity at Shimoga

It is reported that the State Cabinet of Karnataka decided recently to set up a new university at Shimoga to be named as the Sahyadri University. Work on the university is expected to begin in the current year.

History of Punjabi literature

The Syndicate of the Guru Nanak Dev University presided over by Dr G.S. Grewal, Vice-Chancellor, approved some innovative research projects as suggested by him at a recent meeting.

Some of the projects include research on the history of Punjabi literature and the socio-cultural history of Punjab.

Dr Grewal said that each of these projects was comprehensive enough to produce 10 volumes to be published in English and Punjabi.

He also referred to the supporting research in the fields of history, sociology, economics, political science and religion.

Scientists to study Himalayan region

The Planning Commission had asked Kashmir University to establish a "task force" for the study of economic research and development in the Himalayan region.

Under this directive Kashmir University has set up the task force in which scientists from Himachal University were also included as its members.

The task force would start its study from April.

Seminar on comparative studies

The Madurai Kamaraj University, Madurai, proposes to organise in May 1982 a Seminar on Comparative Studies in Indian Literatures. The University is approaching various state governments for their cooperation in holding the seminar.

Diversified courses at PG level

The Madurai Kamaraj University proposes to introduce diversified courses at the Postgraduate level with effect from 1983-84. A meeting of the coordinators of the various Schools and Heads of Departments in the University was recently convened by the Vice Chancellor for the purpose. The diversified courses are to be introduced either by replacing one of the existing papers of studies or by adding more optionals at the second year of the PG. courses. These courses are to be relevant to the environment. Details of the syllabi are being worked out by the Heads of Departments.

Four more universities for Bihar

It is reported that Bihar has decided to obtain the necessary approvals from the University Grants Commission for establishing three general universities and one Arabic-Persian university in the State. The three proposed general universities are to be located at Chapra, Saharsa and Hazaribagh. The Arabic-Persian university is proposed to be located at Patna.

Grant for book banks in Bihar

Under the book bank scheme of the Bihar government, an allocation of Rs 45 lakhs has been made in the current financial year 1981-82, according to an official spokesman.

Each university will get Rs one lakh, get. Each postgraduate department of all the universities will get Rs 20,000 and 320 colleges in Bihar will have altogether Rs 16 lakhs under the scheme for strengthening of their libraries, he said.

Art history seminar

The Faculty of History and Archaeology of the Besant Theosophical College, Madanapalle (Andhra Pradesh) organised a two-day seminar on Art History of Andhra Desa under the COHSSIP programme of the University Grants Commission.

Dr V. Kamesvara Rao, Reader in History, Sri Venkateswara University, delivered the keynote address on landmarks in the art history of Andhra Desa. Lectures on Buddhist Art of Andhra Desa and on the art wealth of Sri Sailam Temple were also delivered at the seminar.

Shri S. Sripathi, Co-ordinator of COHSSIP was the Director of the Seminar.

Diamond jubilee of Patna University

Patna University, the seventh oldest university in the country, will celebrate its diamond jubilee this year, according to university sources.

The University Grants Commission has agreed to sanction a substantial amount to the university for celebration of its diamond jubilee. The university completed its 60th year in 1977 but the diamond jubilee could not be celebrated so far. The university authorities are taking steps for introduction of some new branches of study during the jubilee year.

Sapphirine found in southern Karnataka

Mysore University geologists have discovered the occurrence of the precious blue mineral, sapphirine, in the Terakanambi area in southern Karnataka.

Reporting the discovery in "Current Science," Dr. A.S. Janardhan and Dr. N. Shadakshar Swamy said it was for the first time its occurrence was noticed "in a recrystallised ultramafic enclave."

Sapphirine is aluminium-magnesium silicate. According to the scientists, the rocks bearing the mineral spread over, wide areas of Terakanambi, which forms the southern-most extension of the Saragur high grade terrain in Karnataka.

The scientists found sapphirine in an area about two kilometres south of Terakanambi.

PG teaching in Dhanbad college

The Vice-Chancellor of Ranchi University, Dr A.K. Dhan, has announced that postgraduate classes in science and social science will be introduced in Dhanbad College from the next academic session.

Replying to a reception accorded by Govindpur College, Dr Dhan recently said the university had also decided to build 5 central examination halls for efficient conduct of university examinations. One such examination hall would also be constructed at Govindpur College, he assured.

Pathology centre at Belgaum

The Union Minister for Health and Family Welfare, Mr B.

SAMBALPUR UNIVERSITY
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Corrigendum No. 4629 / Estt. II
Dated: 25.2.82

Sub: Teaching posts in U.C.E., Burla.

In partial modification to the Advertisement No. 2345/Estt. II **Dt. 25.1.1982**, it is notified that the number of vacancy of post against Serial (**B**) I may be read as four instead of three.

S. P. Chaini
ASSTT. REGISTRAR (Admn.)

Shankaranand, inaugurated a 'pathology collaborating centre', the first of its kind in southern India, at the Jawaharlal Nehru Medical College, Belgaum, recently.

The minister stressed the importance of the preventive aspect of ailments. The curative part, he said, only increased the number of doctors and drugs. Any research, he added, should be relevant to reality keeping in mind the needs of medical science in the future.

News from Agril. Varsities

Horticultural research

Research by horticulturists has opened up possibilities of increasing fruit production from the present 20 million tonnes to 80 million tonnes—a four-fold increase—in the next few years.

The research efforts are oriented to raise low nutritional levels of the population and to step up exports of fresh and processed fruits. The present per capita consumption of fruits in the country is as low as 45 kgs. a day, against the minimum dietary requirement of 85 gms. a day.

The director of the Indian Institute of Horticultural Research of the Indian Council of Agricultural Research, Dr K.L. Chadha, said recently that the thrust of the research was on evolving better quality planting material and raising the present yield levels of fruits and vegetables. The average yield of fruits in the country at present was less than ten tonnes per hectare. This yield, he said, was one of the lowest in the world.

The institute is concentrating on improving the yields of fruits like the mango, banana, pineapple, papaya, guava, grapes and citrus fruits. As a result of its efforts, the cultivation of pineapple, which was not popular with growers, was picking up considerably. The scientists have demonstrated to the growers that by adopting a package of agro-techniques and high density planting of improved varieties, pineapple yields could be raised from about 20 tonnes per hectare to about 80 tonnes.

Some of the recent contributions by the institute scientists for commercial exploitation are four new grape hybrids and fourteen vegetable varieties, besides a number of ornamental crop varieties.

New light-trap in lieu of insecticides

(From our Correspondent)

Concerted research, over three years at Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), have resulted in designing and fabricating a new 'light trap' installation of which minimizes insecticides treatment to protect crops.

This Trap uses 125 watt mercury lamp and effectively controls the infestation of gram pod-borer and tobacco caterpillar within a radius of 200 meters of its installation.

Field experiments on gram and soybean this year have revealed overall 65 per cent reduction in the larval population of these respective insect-pests and no insecticides treatment was felt necessary. These insect-pests also affect the crops like cotton, tobacco, pulses and vegetables.

Besides low cost design, it is very efficient in trapping nocturnal insect-pests harmful to crops, easy to install and transport, and suitable for large scale field trials, monitoring and forecasting. Further studies are in progress.

Seed testing workshop

The Jiwaji University hosted the 2nd All India Seed Testing Workshop in collaboration with the University Grants Commission from 13th to 16th January, 1982. The Chief Guest was the Minister for Agriculture of Madhya Pradesh, Shri Digvijay Singh and was presided over by the Vice-Chancellor, Dr. K. K. Tiwari. Dr. Srivastava, Deputy Director-General of ICAR delivered the keynote address at the workshop and Dr. B.S. Mathur of Denish Institute of Seed Pathology, Denmark specially came to participate on the invitation of Jiwaji University.

The workshop held at the School of Studies in Botany, Jiwaji University, was attended approximately by 90 delegates. The deliberations centred around developing good seeds and find out ways and means to have its proper testing.

ICAR review committee on O R projects in animal sciences

The Indian Council of Agricultural Research has constituted a Review Committee to review the work of the Operational Research Projects pertaining to Animal Sciences.

Dr. Prataprao Salvi, Vice-Chancellor, Konkan Krishi Vidyapeeth will be its chairman and Dr S.K. Sharma, Assistant Director General (Extension), ICAR, its member-secretary. Dr Kirti Singh, Dean, Narendra Dev University of Agriculture and Technology, Faizabad, will be a member of this Committee.

The Committee will review the ORP on integrated milk and crop production, NDRI, Karnal, ORP on stepping up crop and fish production, Jute Agricultural Research Institute, Barrackpore, ORP on sheep and wool development, C.S. and S.R.I., Malpura, ORP on composite fish culture, C.I.F.R.I., Barrackpore, ORP on livestock and fodder improvement, I.V.R.I., Izatnagar and ORP on mari culture, C.M.F.R.I., Cochin.

Bulgarian parliamentary delegation visits PAU

A 13-member Bulgarian parliamentary delegation led by Mr Stanko Todorov, Chairman of the National Assembly of the Peoples' Republic of Bulgaria, visited the Punjab Agricultural University recently. They were received by the Vice-Chancellor, Dr Sukhdev Singh, near the Museum of Water and Power Resources in which the delegation showed keen interest. They also showed keen interest in buffalo improvement project of the University. Mr Todorov wanted that PAU should collaborate with Bulgaria in buffalo improvement programmes, since Bulgaria is one of the few countries, outside this sub-continent, which rears buffaloes.

The group also saw the work on breeding of wheat, pulses and oilseeds and on agricultural engineering.

International scientists group at HAU

Twenty-five eminent Soil Scientists representing eleven countries visited Haryana Agricultural University recently. The scientists were at HAU after attending the 12th International Congress of Soil Sciences which concluded in New Delhi on 16 Feb.

The team was taken round the Soils Section of the HAU Research Farm where Dr. Mahendra Singh, Professor and Head of the Department of Soils showed the various experiments to visiting scientists. The visitors were much impressed by the permanent experiments on use of phosphates being conducted at HAU farms for the last fifteen years. In this different, phosphate fertilizers like rockphosphate, diammonium phosphate, nitrophosphate and superphosphate are being compared for their performance on *wheat* and *bajra* crops. Dr. Mahendra Singh disclosed that a significant research finding of this experiment was that phosphates with less than 75 per cent water solubility were not suitable for Haryana soils. The permanent experiments on continuous use of zinc fertilizers and on organic matter and nitrogen which started in 1979 and 1967 respectively were also highly appreciated. Research finding on the deficiency symptoms in different crops and on the technology for use of brackish water were also shown to the visitors.

Dr D.R. Bhumbla, Vice-Chancellor, said that the University scientists had been benefitted by the interaction with so many soil specialists from different parts of the World. Dr Bhumbla, who is the Vice-President of the International Soils Science Society, said that in view of the general enlightenment of the farmers the scientists should be very cautious while making their recommendations.

The group consisted of Scientists from Australia, France, Finland, Germany, Nitherland, New Zealand, U.S.A., West-Germany, Zambia, and Norway.

Pest control

To ensure proper supply of new planting material to growers in different regions, the government is planning to set up a central varietal release committee for horticultural crops on the lines of the one for cereals.

The objective of horticultural research, according to Dr Chadha, was not merely to boost production, but also to reduce the cost of cultivation, so that fruits and vegetables were well within the reach of the masses.

The all-India co-ordinated fruit research workshop has recommended integrated pest control measures on a top priority basis to save the famous Nagpur oranges from being destroyed by the black fly.

The six-day workshop, organised by the ICAR, which concluded at Nagpur recently recommended the formation of a high-power committee to decide on the import and export of fruit plants.

The workshop was attended by some 200 horticulture experts from 19 agricultural universities, five ICAR institutes and representatives of growers.

Breakthrough in rice research

A dwarf male sterile line in paddy developed for the first time in the country by scientists at the University of Agricultural Sciences has opened up the possibility of developing rice hybrids.

Dr N.G. Perur, Vice-Chancellor of the university, told a news conference recently that China was the only country which had done pioneering work in rice hybrids. With the development of the dwarf male sterile line, India had taken the first step in the direction of producing rice hybrids which would double its rice yield. This development was important since the technique for producing rice hybrids had not yet been released to the world by China. The next step would be to develop female lines, which were comparatively easy.

Association of Indian Universities
Deen Dayal Upadhya Marg
New Delhi-110002

Applications are invited on the prescribed form obtainable from the Secretary on remittance of Rs. 2/- for the posts of Under Secretary in the scale of Rs. 1200-50-1600 plus allowances as admissible. The candidates should have a good university degree with at least five years experience in the supervisory/administrative post at the executive level in the university/research organisation/government department. Persons having knowledge of financial and administrative rules and a lively understanding of issues in higher education would be preferred. Higher start can be given to outstanding persons.

Scheduled caste/tribe/ex-army personnel will be given preference. Applications should reach the Secretary latest by **20 March 1982**.

HAU develops new combine-harvester

Haryana Agricultural University has developed a new combine-harvester.

The low-priced farm machine is for speedy harvesting of wheat and rice. The new machine is likely to cost 50 per cent less than small combines available in the market.

International scientists visit research station of KKV

Fourteen scientists from different countries, two each from Bangladesh, China, Sri Lanka; one each from Pakistan, Thailand and International Rice Research Institute, Manila (Philippine) and five from India visited the Kharland Research Station, Panvel (Raigad) of Konkam Krishi Vidyapeeth to observe the State, National and International Rice Testing Programme trials being conducted at the research station. There was a discussion on current screening and breeding strategy to be carried out at this research station for the suitable rice varieties for the coastal saline soils of the Konkan region.

It was decided to have a coordination between research activities on salt land rice and other management aspects of coastal saline soils that are carried out at various centres in the country and the centres abroad.

Dr K.N. Chavan, Kharland Scientist of the Konkan Krishi Vidyapeeth gave information on the activities of the research station.

Development of agricultural aviation

Aircraft have become indispensable in agriculture and forestry in many countries. However, the use of airborne equipment for such purposes on a world-wide scale has hitherto been limited. At present, about 250 million hectares, mainly in moderately and highly-developed industrialized countries, are processed from the air. This represents about 5 per cent of the total airable land area in the world. Obviously, airborne equipment cannot be employed everywhere in view of topography, climate, forms of land ownership, population density and lack of funds for such equipment. However, there are numerous possibilities for expanding agriculture aviation services.

In this connection, the United Nations Economic Commission for Europe (ECE) has just completed a major study concerning possibilities for the use of aeroplanes and helicopters in agriculture and forestry. "Development of Airborne Equipment to Intensify World Food Production" illustrates that agricultural aviation can help to lessen the world food shortage, particularly in Africa, Asia and Latin America.

Science & Technology

Institute for computer personnel

A National Institute of Information Technology (NIIT), has been set up to help overcome the acute shortage of trained computer manpower in the country.

With headquarters at New Delhi, the NIIT plans to conduct computer education programmes in major cities to train personnel to man the rapidly increasing number of computer installations in the country. As against only 100 computer installations in India a little more than a decade ago, over 750 micro, mini and large computers are expected to be installed in 1982 alone.

The establishment of NIIT, follows the report by a panel of the Electronics Commission regarding the ever-increasing gap between the demand for trained computer personnel and their actual availability.

As against an estimated requirement of 5,000 new computer personnel during 1982, only about 500 are expected to come out of the educational institutes already imparting computer training.

The NIIT will be governed by an advisory council comprising, among others, representatives from leading computer manufacturers, institutes of technology (IITs), institutes of management (IIMs) and the National Council of Educational Research and Training.

A salient feature of the NIIT training schemes is to achieve a high percentage for the placement of personnel trained by it in actual jobs. For this, NIIT plans to work in close liaison with data processing users and export houses of computer software in the country.

NIIT courses would be tailored to impart "skill development" rather than "knowledge development". The emphasis would be on giving maximum "hands-on" experience of computers so that a trained person could take on a job immediately after finishing a regular course.

The NIIT is planning extensive use of the latest video and audio techniques in computer training. It has tied up with leading educational bodies in Europe and USA for the use of their courseware, teaching aids and visiting faculty.

The NIIT also plans to hold a series of top management seminars to involve captains of industry and senior executives in the essentials of data processing.

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Babu, Thomas. A study of personality and motivational factors of trade union members in relation to their affiliation to union organization. M.S. University of Baroda. Dr. Z.M. Quraishi

2. Paul, Prisciua Viswas. A study of value orientations of adolescent boys and girls. M.S. University of Baroda. Dr. N.S. Pathak.

Economics

1. Arya, Ramesh Kumar. Chhindwara zile ke krishi shramkon kee arthik dasha: Ek vishleshan. University of Saugar. Dr. M.L. Tripathi.

2. Jain, Ajit Kumar. Cost benefit analysis of tank irrigation in Tikamgarh District. University of Saugar. Dr. K.C. Jain.

3. Mishra, Sukh Lal. Laghu evam simant krishkon kee samasyaen: Ek alochnatmak adhyayan Hamirpur zile ke vishesh sandarbh mein. University of Saugar. Dr. M.L. Tripathi.

4. Naresh Kumar. Poverty in rural Punjab: An economic analysis. Panjab University. Dr. B.N. Ghosh, Department of Economics, Panjab University, Chandigarh.

5. Narinder Kaur. Pattern of public investment and inter-district disparities in agricultural development: A case study of Punjab, 1950 to 1981. Panjab University. Dr. D.S. Khushwaha, Department of Economics, Panjab University, Chandigarh.

6. Rama Rani. An economic analysis of agricultural wages in Punjab. Panjab University. Dr. B.N. Ghosh, Department of Economics, Panjab University, Chandigarh.

7. Sandhu, Amrik Singh. Labour migration from Punjab and its impact upon the regional economy: A case study of Ludhiana/Faridkot District. Panjab Universty. Dr. V.S. Mahajan, Department of Economics, Panjab University, Chandigarh.

8. Shrivastav, Meena. Public distribution system in Madhya Pradesh. University of Saugar. Dr. P.K. Bhatnagar.

9. Somvane, Ramjivan. Technological changes and agricultural development in Balaghat District. University of Saugar. Dr. K.C. Jain.

10. Soni, Ashok Kumar. Production and marketing of teak wood in Madhya Pradesh. University of Saugar. Dr. K.C. Jain.

11. Surendra Kumar. Economic development in Lahaul and Spiti: A tribal district in H.P. Panjab University. Dr. D.S. Khushwaha Department of Economics, Panjab University, Chandigarh.

12. Thakur, Jaheer Singh. Economics of small irrigation projects in Sagar District. University of Saugar. Dr. M.L. Tripathi.

13. Verma, Nilimesh. Financing of agriculture by the State Bank of India to scheduled caste and scheduled tribes in Sagar District. University of Saugar. Dr. K.C. Jain.

Law

1. Amrit Pal Singh. Bars to the matrimonial relief: A modern perspective. Panjab University. Prof. Paras Diwan, Head, Department of Laws, Panjab University, Chandigarh.

2. Garg, Vijay Kumar. The directive principles jurisprudence toward socio-economic justice under the Indian constitution. Panjab University. Prof. Paras Diwan, Head, Department of Laws, Panjab University, Chandigarh.

3. Rajinderjit Kaur. Viability of the Hindu joint family under the modern social structure. Panjab University. Prof. Paras Diwan, Head, Department of Laws, Panjab University, Chandigarh.

Education

1. Biswas, Nikunja Behari. A study of the curriculum for primary education in Bangladesh. M.S. University of Baroda. Dr. R. Govinda.

2. Kathuria, Kavita. Self concept and adjustment of adolescents. *University of Saugar*. Dr. S.P. Ahluwalia.

3. Mishra, Sarla. Differential personality patterns of juvenile offenders in Madhya Pradesh. University of Saugar. Dr. S.P. Ahluwalia.

Commerce

1. Dev, B.K. *Economic development of the North Cachar* Hills Distt of Assam since independence. Gauhati University. Dr. A.K. Sharma.

2. Hazarika, M. Institutional financing of the agricultural *sector of Assam*: A case study of Kamrup District. Gauhati *University*. Dr. A.K. Sarma.

3. Phukan, N.C. Dhekial. The management of the Assam *State Transport Corporation*: A study of management functions. Gauhati University. Dr. A.K. Sarma.

Management

1. Ghosh Roy, *Hirak Jyoti. Working capital management*: A case of selected *public sector enterprizes. Maharshi* Dayanand University. Prof. N.K. Gupta, Head, Department of Business Management, Maharshi Dayanand University.

HUMANITIES

Language and Literature

Sanskrit

1. Mohinder Kumar. A critical study of rgvindhana. Panjab University. Prof. Ram Gopal, Department of Kalidasa Chair in Sanskrit, Panjab University, Chandigarh.

2. Sharma, Dev Raj. Four castes in vedic literature: An analytical study. Panjab University. Dr. K.K. Dhavan, Head, Department of Sanskrit, D.A.V. College, Chandigarh.

Punjabi

1. Sukjit Kaur. Comparative study of the female characters of Nanak Singh and Prem Chand. Panjab University. Prof. V.N. Tewari, Department of Punjabi, Panjab University Chandigarh.

Hindi

1. Jagjit Kaur. Moolya parivartan kee prakriya aur Hindi upanyas 1970 se ab tak. Panjab University. Dr. M.P. Bhardwaj, Department of Hindi, Panjab University, Chandigarh.

2. [illegible] Hindi upanyason mein [illegible] ab University. Dr. M.P. [illegible], Panjab University, Chandigarh.

3. Urmil. Vakrokt siddhant ke pariprekshya mein Tulsi kavya ka adhyayan. Panjab University. Dr. Yash Gulati, Department of Hindi, Panjab University, Chandigarh.

Fine Arts

1. Agrawal, Usha. Tharu lok chitran-ek vivechanatamk adhyayan. Uttar Pradesh ke Nainital zile ke vishesh sandarbh mein. Kanpur University. Dr. S.B.L. Saxena, Dedartment of Drawing and Painting, Bareilly College, Bareilly.

2. Banerji, Konika. Religious theme in Mughal painting.

Kanpur University. Dr. S.N. Saxena, Department of Drawing and Painting, D.A.V. College, Kanpur.

3. Dhavan, Renu. Bundelkhand kee lok chitrakala ka sameekshatmak adhyayan. Kanpur University. Dr. Ram Kunwar, Department of Drawing and Painting, D.A.V. College, Kanpur.

4. Garg, Ragni. Gwalior chitrashailli: Ek sameeksha. Kanpur University. Dr. Ram Kunwar, Department of Drawing and Painting, D.A.V. College, Kanpur.

5. Gulati, Usha Kiran. Sikh chitra-shaili kee vishaya vastu ka ek adhyayan. Kanpur University. Dr Ram Kunwar, Department of Drawing and Painting, D.A.V. College, Kanpur.

6. Gupta, Hari Ram. Jahangir Kalin chitrakala kee vivechna Kanpur University. Dr. S.B.L. Saxena, Department of Drawing and Painting, Bareilly College, Bareilly.

7. Gupta, Uma. Mughal chitra shaili mein vyakti chitra. Kanpur University. Dr. S.M. Saxena, Department of Drawing and Painting, D.A.V. College, Kanpur.

8. Gupta, Vinod Kumar. Ajanta chitron kee vishya vastu evam chitrana vidhi: Ek adhyayan. Kanpur University. Dr. S.B.L. Saxena, Department of Drawing and Painting, Bareilly College, Bareilly.

9. Gyan Chandra. Bundelkhand kee chitra shaili : Ek sameeksha. Kanpur University. Dr. Ram Kunwar, Department of Drawing and Painting, D.A.V. College, Kanpur.

10. Khanna, Nand Kishore. Uttar Pradesh chitrakala mein prayog aur pragati Kanpur University. Dr. S.N. Saxena, Department of Drawing and Painting, D.A.V. College, Kanpur.

11. Mateen, Nishat. Akbar kalin chitrit vishayon ka anusheelan. Kanpur University. Dr. S.B.L. Saxena, Department of Drawing and Painting, Bareilly College, Bareilly.

12. Nigam, Akhilesh Chandra, Avadh kee chitrakala paramparaen: Lucknow kalam ke sandarbha mein ek adhyayan. Kanpur University. Dr. S.N. Saxena, Department of Drawing and Painting, D.A.V. College, Kanpur.

13. Parashri, Narendra Babu. Chitra sutra ke siddhant aur Bharatiya chitrana parampra evam adhyayan: Ajanta chitrana ke vishesh sandarbh mein. Kanpur University. Dr. S.N. Saxena, Department of Drawing and Painting, D.A.V. College, Kanpur.

14. Sah, Chandra Prabha. Kumaun sanskriti ke paripreksh mein lok bhitti chitron ka mahatva. Kanpur University. Dr. S.N. Saxena, Department of Drawing and Painting, D.A.V. College, Kanpur.

15. Saxena, S.B.L.A critical analysis of oriental and occidental theories of aesthetics in painting. *D.Litt.* Kanpur University.

16. Saxena, Sandhya. Kishangarh shaili: Ek vivechana. Kanpur University. Dr. Ram Kunwar, Department of Drawing and Painting, D.A.V. College, Kanpur.

17. Sharma, Indu. Sikkim Chitrakala ka vivechnatmak adhyayan. Kanpur University. Dr. Prema Misra, Department of Drawing and Painting, J.D.G.D. College, Kanpur.

18. Sharma, Manorama. An estimate of aesthetics in modern Indian painting with reference to the painting of M.I. Paints from 1947 to 1957. Kanpur University. Dr. S.B.L. Saxena, Department of Drawing and Painting, Bareilly College, Bareilly.

19. Sote, Gyan Prakash. Pracheen Bharatiya chitrakala mein abhivyaktikaran: Ek adhyayan doosari shatabdi se starvee shatabdi tak. Kanpur University. Dr. S.B.L. Saxena, Department of Drawing and Painting, Bareilly College, Bareilly.

20. Srivastava, Sarojini. Traditions and religious background of Ajanta paintings. Kanpur University. Dr. S.N. Saxena, Department of Drawing and Painting, D.A.V. College, Kanpur.

21. Sudha Rani. Kangra chitrakala mein rasik priya ke vishya: Ek adhyayan. Kanpur University. Dr G.B. Sharma, Awadh Building, Khinni Gate, Aligarh.

22. Sunil Kumar. Kangra-chitrakala mein Shringar paksha kee vivechna. Kanpur University. Dr. S.B.L. Saxena, Department of Drawing and Painting, Bareilly College, Bareilly.

23. Vasiullah. Ajanta chitra-shaili mein srajanatmak roop saundarya. Kanpur University. Dr. Govind Behari, Department of Fine Arts, D.S. College, Aligarh.

Geography

1. Khorana, Nirmal. Demographic changes in the inter state Chandigarh region, 1951-75; Spatial analysis. Panjab University. Prof. Gurdev Singh, Gosal, Department of Geography, Panjab University, Chandigarh.

History

1. Pal, Ram. Tirthas of Kurukshetra as enumerated in the epics and pauranas. Maharshi Dayanand University. Dr. Silak Ram, Reader, Department of History, Maharshi Dayanand University, Rohtak.

2. Sheela Devi, R. Social life in Kerala in the Sangam Age. University of Kerala. Dr. M.J. Koshy.

3. Vijayalskhmi, P. Temple centred life in Kerala as reflected in medieval inscriptions. University of Kerala. Dr. T.K. Ravindran.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Jerath, Jagat Mohan. A study of achievement motivation and its personality motivation and ability correlates. Panjab University.

2. Kiran Kumar, S.K. A study of personality correlates in certain clinical conditions and other states suggestive of altered states of consciousness. Bangalore University.

3. Venkiah, G. Rajeevalochana. A study of administrator behaviour in secondary schools of Tamil Nadu. M.S. University of Baroda.

Sociology

1. Banerji, Sanjukta. The position and prospects of blacks in contemporary America : An analysis of ideological perspectives and strategies in the black protest movement. Jawaharlal Nehru University.

2. Dutta, P.K. A study of factors responsible for setback of National Malaria Eradication Programme at unit level in Gurgaon District. Jawaharlal Nehru University.

3. Joshi, Manoj K. Place of blacks in American society : A critical study of the debate till the emancipation Proclamation. Jawaharlal Nehru University.

4. Prasad, Rama Krishna. Generation gap-sociological study in intergenerational conflict. University of Poona.

Social Anthropology

1. Chakraborti, Praphulla Kumar. Tarakeswar : An anthropological study of a Hindu place of pilgrimage in West Bengal. University of Calcutta.

2. Mondal, Sekh Rahim. A comparative study of social cultural life of the Hindu and Muslim people at an industrial setting in West Bengal. University of Calcutta.

3. Sudhakara Reddy, P. The displaced Yanadi of Shriharikota Island: A study in socio-cultural continuity and change. Sri Venkateswara University.

Political Science

1. Acharya, Manoranjan. The integration of native states in Orissa. Sambalpur University.

2. Anand, Harjit Singh. Directive principles and attitude orientation at the L.B.S. National academy of administration. Maharshi Dayanand University.

3. Bharat Kumar. Super powers and the West Asian crisis of 1967. Jawaharlal Nehru University.

4. Bhargav, Asha. Relations of Rewa State with British paramountacy. Awadhesh Pratap Singh University.

5. Chowdhury, Paresh Chandra. Parliamentary democracy in India and socio-economic transformation. Rabindra Bharati.

6. Das, Dipak Kumar. The national and colonial question : From Marx to the second congress of the Comintern. University of Calcutta.

7. Das, Narayanprasad. Social and institutional factors in agrarian development. University of Calcutta.

8. Dikshit, Dharam Pal. Impact of foreign aid on India's foreign policy : A study of the role played by foreign aid in India's foreign policy from 1952-1972. Meerut University.

9. Misra, Somanath. Evolution of the administrative services of Orissa. Sambalpur University.

10. Modak, A.G. Soviet economic aid to India. Jawaharlal Nehru University.

11. Mohamad Mozibur Rahman. Muslim castes in rural West Bengal ; A study with special reference to the district of Murshidabad. University of Calcutta.

12. Mukherjee, Murari Mohan. Dynamics of voting behaviour : A study of electorate-party interaction in three constituencies of West Bengal. Rabindra Bharati.

13 Verma, Sujata, U Thant as the Secretary General of the United Nations : A critical appraisal. Meerut University.

Economics

1. Chatterjee, Salil Kumar. The economy of Arunachal Pradesh : Its nature and scope for economic development. Rabindra Bharati.

2. Gopalan, Muthuswamy. A study of cotton production and marketing in Tamil Nadu. Andhra University.

3. Khan, Bashir Ahomd. Economic consequences of land reforms in the state of Jammu and Kashmir. University of Kashmir.

4, Kholkute, Vishwas Manoharrao. Nagpur jilhyaetyl sahkari vipran sanstha. Nagpur University,

5. Prasad, Radhe Shyam. Foreign aid and economic development with special reference to India. Magadh University.

6. Singh, Baidyanath Prasad. A study of recent trends in public expenditure and its impact on the economy of Bihar since independence. Bihar University.

7. Singh, Kanti. The Great Depression and agrarian economy of Bihar. Magadh University.

Law

1. Bal Krishna. Standard form contracts : Their impact, *implications and control. Panjab University.*

Military Science

1. Krishan Murari. Yudha ka prabhavkari viklap : Ahimsa Bharat ke azadi ke sangharsh mein Mahatma Gandhi kee ahimsatamak kranti ka ek sameekshatmak adhyayan. University of Gorakhpur.

Public Administration

1. Mathulla, Kuppakkatu Paily. Training and development in IAF and HAL. Osmania University.

2. Raju, K. Venkat Ramesh. District collector in Andhra Pradesh. Osmania University.

3, Tukaram, M. Management of water supply in the cities of Hyderabad and Bangalore : A comparative study. Osmania University.

Education

1. Chauhan, Brijpal Singh. Educational philosophy of Swami Dayanand. Meerut University.

2. De, Uma. Development of scholastic achievement test in geography for madhyamik students of West Bengal. University of Calcutta.

3. Jain, Satish Sudash Bhushan. A study of the impact of reading on achievement of pupils of class VII in different school subjects. Sardar Patel University.

4. Parameswaranarm, Nambula. Physical education health and recreation of all India inter-university weight lifters. Andhra University.

5. Patel, Kashiram Madhavlal. A study of the value orientation in the educational institutions run by Sathya Sai organisation. Sardar Patel University.

6. Potivara, Chaichana. A study of organisational climate and teacher morals in teachers' Colleges of Thailand. Sardar Patel University.

7. Punja, Shobita. An approach to art education : A survey and tryout of a renewed programmes of art education. M.S. University of Baroda.

8. Shah, Bhupendrabhai Bhailalbhai. An experimental investigation of the effects of selected teaching strategies on the development of creative thinking and achievement in science. M.S. University of Baroda.

9. Shashidhar, B. A study of the relationship between a few school variables and the achievement of scheduled castes students studying in secondary schools of Karnataka. Bangalore University.

10. Skariah, M.T. Construction and standardization of oral reading comprehension test in English for pupils of class VIII of Gujarat. Sardar Patel University.

11. Sumbali, Kiran A study of aggression among children and adolescents. University of Jammu.

12. Vinaitheerthan, V. A study of innovation dissonance and its correlates in the secondary school. M.S. University of Baroda.

Commerce

1. Jhanjhari, P.C. Financial appraisal of Life Insurance Corporation of India. University of Rajasthan.

2. Pachpande, Asha Raghunath. Comparative study on the attitude of workers towards management in India and Japan. University of Poona.

3. Poonia, Mohan Singh. Operational efficiency of Industrial Finance Corporation of India. University of Rajasthan.

4. Varkey, V.O. Development and working of coir cooperatives in Kerala. University of Poona.

Management

1. Taluja, Jagmohan. Joint ventures and UNCTAD. Kurukshetra University.

Home Science

1. Ubgade, Swati Rajesh. Management of selected resources of the farm families and its effect on development agriculture. Nagpur University.

HUMANITIES

Philosophy

1. Bhattacharyya. Samarendra. Thought and language. *University of Calcutta.*

2. Devendra Singh. Swatantroyttar Bhartiya paramparavadi rajnetik chintan kee darshnik purva manyatayen. Meerut University.

3. Elias. D. The concept of Omega point in the philosophy of Pierre Theilhard de Chardin. University of Kerala.

4. Sambasiva Prasad, B. A critique of the philosophy of Sensedata. Sri Venkateswara University.

Language and Literature

English

1. Ahmed, Zamiruddin. Byron as a dramatist of poems. Bhopal University.

2. Arunachalam, Latha. American women poets with special reference to Bradstreet, Dickinson and Moore. Karnataka University.

3. Bala Subramanyam, G. Craft and creed in the plays of J.B. Priestley. Sri Venkateswara University.

4. Bhattacharyya, Ajit Kumar. A comparative study of English and Sanskrit figures of speech. University of Calcutta.

5. Joshi, Mahendra Ishwarlal. Error analysis and

remedial teaching in English with reference to the first year college learners of English in South Gujarat. South Gujarat University.

6. Khan, I.Y. An examination of Sarojini Naidu's poetry with special reference to her themes and art. Bihar University.

7. Krishna Murthy, Prakhya Gopala. The theme of connection in the novels of E.M. Forster. Andhra University.

8. Raj G.V. Novels of Rabindranath Tagore : A critical study. Kakatiya University.

9. Sathyanarayana, C. The *citizen comedy in the early* seventeenth century with reference to Dekker, Heywood, Middleton Marston and Massinger. Sri Venkateswara University.

10. Shah, Bhupendra Naginlal. Theodore Roethke and the Whitman tradition. M.S. University of Baroda.

German

1. Kamath, Rekha. Brecht's lehrstuck modell als bruch mit dem burgerlichen theater. Jawaharlal Nehru University.

Sanskrit

1. Agrawal. Laxmi Devi. Sanskrit-vyakaran-darshan mein dhatvartha visara. Kurukshetra University.

2. Goswami, Biswanarayan. The concept of Samavaya in the Nyaya Vaisesika Philosophy. D. Litt. University of Burdwan.

3. Jain, Vidyawati. Mahakavi Singh evam unka adaavdhi aprakashit granth—"Pjjunncharit". Magadh *University.*

4. Jha, Bhalchander. Samvede karmvad samiksha. K.S. Darbhanga Sanskrit University.

5. Pal, Vijaya. Yoga tatva vaisharadi aur yogavartik ka tulnatman adhyayan Meerut University.

6. Pandey, Mahender. Balmiki Ramayan ke pramukh patron ke chritron ka adhyayan. K.S. Darbhanga. Sanskrit University.

7. Poonam Bala. Rupaka alankara ke kramika vikasa. Kurukshetra University.

8. Siddheswar Sain. Navyanyaye alaukika-sannikarsa. Rabindra Bharati.

9. Santosh Kumari. Alamkar-Sekhara: Samikshatmak aur tulnatmak adhyayan. Kurukshetra University.

10. Sharma, A. Purnananda. Tradition and modernity in 20th century Sanskrit drama. Osmania University.

Hindi

1. Agrawal, Saroj. Jai Shanker Prasad ke kavya me bimbavidhan. Osmania University.

2. Aiyer, P. Sundaram. Synthetic constraints and adverbials in Hindi. Kurukshetra University.

3. Bala Sundri. Premchandottar Hindi upanyas sahitya main samajik evam manovaigyanik tanavon ka adhyayan san 1936 se 1970 tak. Meerut University.

4. Gadgil, Usha Shankar. Tar-saptak ke kaviyon ke kavya main upma vidhan. University of Poona.

5. Gautam, Purushottam Dayal. Brij evam Kauravi *loknatya ka tulnatmak adhyayan. Meerut University.*

6. Gupta, Swaran Lata. Khari Boli ram kavya parampara me Poddar Ramaavtar Aranu krit Aranu Ramayan ka vishist adhyayan. University of Jammu.

7. Juneja, Ved Prakash. Nath sampradaya : Sadhana, sahitya evam siddhant. Kurukshetra University.

8. Mathan. Keshab Chandra. Bangal mein Hindi patrakaarita ka vikas. Magadh University.

9. Navodaya, Durgempudi. The plot and technique in the novels of Krishna Chander. Andhra University.

10. Rai, Hariyash. Bharat Pak vibhajan ka sandharbh aur Hindi katha sahitya. Meerut University.

11. Raj Rani, Chhayavadi kavyadhara ka shaili vaigyanik adhayayn. Meerut University.

12. Ranjan, Kamla. Prem Chander ke katha-sahitya mein sampradayik ekta. Magadh University.

13. Rao, Vijayalakshmi S. Seth Govind Das ke natakon mein yug-chetna. Andhra University.

14. Shah, Keshavalal Popatlal. Vishnu Prabhaker ke sahitya ka anusheelan. Shivaji University.

15. Sharma. Basudeo Girraj Prasad. Hindi ke sathottari-upanyason mein ankit jivanmulya, 1960-80. M.S. University of Baroda.

16. Venkata Rao, Mantha Mohana. Acharya Chatursen ke upanyas sahitya ke manobhavatmak. Andhra University.

17. Verma, Valsala S. Comparative study of literary essays in Hindi and Malayalam, 1850 AD to 1950 A.D. University of Kerala.

18. Waskar, Pushpa Ananad. Dr. Dharmveer Bharati : Vyaktitav evam krititav. Shivaji University.

19. Zahir, Zabbunissa. Prem Chandottar Hindi upanyason mein vyakti aur ushaanter dawandwa. University of Kashmir.

Urdu

1. Abdur Rahman. Parvez Shahidi as a poet. University of Calcutta.

2. Ahmad, Mohamad Ataur Rahman. The life and works of Makhadoom Mohiuddin. Bihar University.

3. Jeelani, Abu Baker. Maharaja Apurbakrishna Bahadur Kunwar as a mathnawi writer. University of Calcutta.

4. Mazhari, Suraiya Jamal. Evolution of Urdu : Harisia Anis to Josh; 1850-1975. D. Litt, Bihar University.

5. Mohammad Aslam. Meer Mahfooz Ali life and work. Meerut University.

Bengali

1. Adak, Rabindra Nath. Bangla kavye Rabindra Prathab and Kavi Kalidas Roy. Rabindra Bharati.

2. Bhattacharyya, Manjusri. Bangla kavye Kalidas Roy. University of Calcutta.

3. Chakrabarti, Dulalchandra. Dakshin Tripurar loksahitya-o-*bhasa. University of Calcutta.*

4. Ghosh. Syamal Kumar. Kabital chitrakalpa-o-Jibanananda Das. Rabindra Bharati.

5. Mohamad. Khairul Bashar. Muslim rachitra bangla upanyasho 1885-1930. University of Calcutta.

6. Saha, Adhis Chandra. Debendranath Sen : Jibani-o-kabyabichar. University of Burdwan.

Oriya

1. Bal, Ganga Dhar. Gopalakrsna o tankara rachana*vali : Eka adhyayana. Berhampur University.*

Marathi

1. Bidkar, Rajendrakumar Gopalrao. V.M. Joshi vyaktitav aanny va mey. Shivaji University.

2. Mote, Nagnath Apparao. Dlyantachi marathijyl nyatakalyke : Ek vyvechak abhyas esvi 1874 se 1950. Shivaji University.

Gujarati

1. Shastri, Vijaykumar Ramanlal. A study of form and technique of short-story with reference to four short story writers. South Gujarat University.

Persian

1. Kamptee, Mohamad, Asghar Warispura. Maulvi Ghulam Ali Azad Balgrami : Hayat aur adabi khidmat. Nagpur University.

2. Sultana, Zakia. Critical edition of "Yad-e-baiza" of Mir Ghulam Ali Azad Bilgrami. Osmania University.

Russian

1. Dhaka, R.P.S. Principles of terminology formation in Russian and Hindi : A comparative study. Jawaharlal Nehru University.

Tamil

1. Govindan, C. A comparative study of Kambaramayanam and Malayala Ramayanas with special reference to Ayya Pillai Asan's Ramakataippattu. University of Calicut.

2. Murugan, S. Sengaivel. Religious development in Tamil literature from Sangam period to 600 AD. Osmania University.

Fine Arts

1. Ghosh, Pradip Kumar. Bangali padakarta o rag ruper samagrik atmikaran. Rabindra Bharati.

Geography

1. Das, Manamohan. Structural analysis of peasant agriculture in Assam. *Gauhati University.*

2. Desai, Mamata. Geomorphological characteristics of the South Koel Basin. University of Calcutta.

3. Raghavaswamy, Vaddiparthi. Land forms, land

systems and geographical synthesis of Visakhapatnam tract in the East Coast plain of India. Andhra University.

4. Roopali, Matta. A geographic analysis of agro climatic factors relevant to progress of Hyv : A case study of the Bankura District, West Bengal. Andhra University.

5. Sachidevi Suryadevara. Studies on thermal continentality of India and the neighbourhood. Andhra University.

History

1. Bhargava, Shashi Lata. Gupt sikkon ka adhyayan. University of Rajasthan.

2. Bhatnagar, Rajiv. Karnal town : A study of social and economic change, 1941-1975. Kurukshetra University.

3. Habib Irfan. The ideology and programme of the revolutionary-terrorists in U.P. and Punjab from 1921-32 and its impact on the freedom struggle. Meerut University.

4. Mirchandani, Ram Mangharam. Archaeological survey of Ahmedabad District. M S. University of Baroda.

5. Misra, Bhaskar Nath. A study of the historical and educational aspects of Nalanda. University of Saugar.

6. Rami Reddy, M. Pattabhi. East India Company in Andhra with special reference to agrarian relations, 1760-1820. *Sri Venkateswara University.*

7. Sagar, Shashi. Untouchables in Ancient India 700 A.D. to 1200 A.D. Meerut University.

8. Shukla, Karuna Shankar. Archaeology of the Unnao District. University of Saugar.

Thrust in Indian Agriculture

(*Contd. from page* 183)

not just in terms of a single crop or a farm animal but to tackle the farming system as a whole. Research on rainfed farming should be further intensified to benefit the large number of marginal and sub-marginal farmers. Research on bio-fertilizers to balance with the use of chemical fertilizer and to conserve the biosphere and the eco-system is of utmost importance to meet the challenges of the spiralling price of chemical fertilizers. Research on the most efficient methods of harnessing and harvesting from the atmosphere, the abundantly available sun-light, nitrogen and carbon should receive the best attention of the nation's top scientists and agricultural research institutions. We have to develop appropriate technology for better use of biomass which is a by-product of agriculture. Research in energy management, especially the development of new and renewable sources of energy needs to be greatly strengthened. Agricultural Universities and Research Institutions of ICAR should take up research for developing relevant technologies in these areas. Adequate research on engineering and other aspects of post-harvest technology is essential to minimise wastage and loss of our agricultural commodities in processing, transport and storage. Market research is another area which needs emphasis so tht the data would help the Union and State Governments in taking timely regulatory measures in respect of production programmes, purchases and public distribution policies.

Another important area which the Government is giving serious attention is the irrigation sector for which considerable allocation has been made in the Sixth Plan budget. I am happy to note that the Tamil Nadu Agricultural University has made considerable progress in water management research. In recognition of this the Swedish International Development Agency has agreed to assist the establishment of a Water Technology Centre at this University. The Govt. of India/ICAR has played a key-role in getting this scheme sanctioned. Similarly in recognition of the potential of this university in the field of Microbiology, the ICAR have agreed to the establishment of an advanced centre of post-graduate education and research in this field here. We are also considering other proposals for establishing one more centre in this university. I expect the university will develop these centres as truly national centres benefiting the whole country...

The establishment of link between the university and developmental departments should be strong so that the mechanism of transfer of technology from the laboratories to the production fields is strong and efficient. I am happy to note that the Communication Centre of the University is successfully disseminating the knowledge through mass-media like newspapers, farm journals and radio broadcasts. I was informed that the Krishi Vigyan Kendra established in Pondicherry and the Farmers Training Centre at Madurai and Coimbatore are actively engaged in arranging field demonstrations and adaptive research trials in farmers fields.

It is observed that often claims are made by the scientists of the development of new and high yield varieties, but the farmers complain about the non-availability of the improved seeds and planting materialy. I hope that the university is giving adequate attention in this regard. Similarly the university should also be in a position to keep a watch on the quality of the input available for the farmers. The Govt. is trying its best to provide quality material. On the same lines there is need to emphasise study and research on agricultural marketing. You are aware that the pricing policy of the government is guiede by the data supplied by the agricultural universities. I suggest that the university should pay more attention to scientific studies in this area. To my knowledge many a time the data supplied by the universities do not take into consideration factors like the cost on transport, risk coverage etc. while calculating the the cost of production. The agricultural universities being closer to the farmers should take up this responsibility and safeguard their interests also."

[*Excerpts from the convocation address delivered by the Union Minister for Agriculture, Rural Development & Civil Supplies, Rao Birendra Singh, at the Tamil Nadu Agricultural University, Coimbatore.*]

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during February, 1982

EDUCATIONAL PHILOSOPHY

Blyth, Alan. "From individuality to character : The Herbertian sociology applied to education". *British Journal of Educational Studies* 29(1) ; Feb 81 : 69-79.

Chakrabartty, P.R. "Oriental tradition in education ; Tagore's views". *Journal of Indian Education* 7(1) ; May 81 : 34-42.

Jacob. Plamthodathil S. "The remedial approach in college education". *New Frontiers in Education* 11(4) ; Oct-Dec 81 : 15-27.

Kalra, R.M. "Should higher education be value oriented ?". *University News* 20(2) ; 15 Jan 82 : 41, 43.

Seshadri, C. "Indianization of philosophy of education". *Journal of Indian Education* 7(1) ; May 81 : 3-8.

Shaw, Beverley. "Is there any relationship between educational theory and practice ?". *British Journal of Educational Studies* 29(1) ; Feb 81 : 19-28.

Terhart, Ewald, "Knowledge utilization in the science of teaching". *British Journal of Educational Studies* 29(1) ; Feb 81 : 9-18.

EDUCATIONAL SOCIOLOGY

American Association of University Professors. "Statement on professional ethics". *New Directions for Higher Education* 9(1) ; 1981 : 83-5.

Buhler-Miko, Marina. "Futures planning and the sense of community in universities". *New Directions for Teaching and Learning* (5) ; 1981 : 25-39.

"IMPROVEMENT OF living conditions in the university and college hostels". *Bulletin of Higher Education* 6(1) : Oct 81 : 13-15.

Von Recum, Hasso., "Education in the affluent society : Problems and conflicts". *International Review of Education* 27(1) ; 1981 : 1-14.

Wringe, C.A. "Education, schooling and the world of work". *British Journal of Educational Studies* 29(2) ; June 81 : 123-37.

EDUCATIONAL PLANNING

Ravishankar, S. "Education in the sixth plan-II". *Indian Education* 11(8-9) ; Nov-Dec 81 : 45-7.

EDUCATIONAL ADMINISTRATION

American Association of University Administrators. "Professional standards for administrators". *New Directions for Higher Education* 9(1) ; 1981 : 87-91.

El-Khawas, Elaine. "Self-regulation : An approach to ethical standards". *New Directions for Higher Education* 9(1) ; 1981 : 55-62.

"GUIDELINES FOR assistance to university postgraduate centres". *Bulletin of Higher Education* 6(1) ; Oct 81 : 16-18.

"GUSKIN, Alan E. "How administrators facilitate quality teaching ?". *New Directions for Teaching and Learning* (5) ; 1981 : 1-15.

Hanna. Donald E. "Strengthening collegiate faculty rewards for continuing education". *New Direction for Continuing Education* (9) ; 1981 : 43-50.

Hegarty, Thomas J. and Young,. James H. "Teaching, lea[illegible]". *New Directio*[illegible] ; 41-52.

"MAI[illegible] ersities for publication of Learned/Research work including Doctoral Theses during 1980-81 and 1981-82". *Bulletin of Higher Education* 6(1) ; Oct 81 : 19-21.

COUNSELLING & GUIDANCE

Pasricha, Prem. "Guidance and counselling". *New Frontiers in Education* 11(4) ; Oct-Dec 81 : 47-76.

CURRICULUM

Seth, S.C. "Introducing futurology in Schools and colleges". *Journal of Indian Education* 7(1) ; May 81 : 43-9.

LIBRARIES

Stoffle, Carla J. "The Library's role in facilitating quality teaching". *New Directions for Teaching and Learning* (5); 1981 : 67-78.

TEACHING

Das, R.C., and others. "Relative effectiveness of variations in microteaching components ; An experimental study". *Journal of Indian Education* 7(1) : May 81 ; 64-75.

Gabriel, J. "An alternative teaching experience". *New Frontiers in Education* 11(4) Oct-Dec. 81 : 42-6.

Jacob, P. Grace. "Teaching of English at degree level : Some new directions". *New Frontiers in Education* 11(4) ; Oct-Dec 81 : 15-27.

Sharma, A.P. "Growth of personal and professional qualities during in-service programmes". *Journal of Indian Education* 7(1) ; May 81 : 57-60.

Rowiszowski, Alexander J. "A new look at instructional design. Part I Learning : Restructuring one's concepts". *British Journal of Educational Technology* 12(1) ; Jan. 81 : 19-48.

EDUCATIONAL RESEARCH

Broadfoot, Patricia and Nisbet, John. "The impact of research on educational studies". *British Journal of Educational Studies* 29(2) ; June 81 : 115-22.

Gibbons, Michael. "Universities and research : Challenge and response". *Higher Education Review* 13(3) ; Summer 81 : 27-44.

Stenhouse, Lawrence, "What counts as research". *British Journal of Educational Studies* 29(2) ; June 81 : 103-14.

EDUCATIONAL TECHNOLOGY

U.K., Council for National Awards. "Learning Research Working Party. "Use of learning resources in higher education". *British Journal of Educational Technology* 12(2) ; May 81 : 8[illegible]-97.

EVALUATION

Harris, N.D.C. and Bailey, J.G. "Evaluation resource pack". *British Journal of Educational Technology* 12(2) : May 81 : 107-19.

Kibblewhite, D. "Test reliability : A practical approach for the teacher". *Educational Studies* 7(3) ; 1981 : 295-13.

Mishra, R.G. and Arora, P.N. "The role of surveys and studies in educational evaluation". *Journal of Indian Education* 7(1) ; May 81 : 50-6.

Nathensan, M., and others. "Learning from evaluation at the Open University : A new model of course development". *British Journal of Educational Development* 12(2); May 81 : 120-39.

ADULT EDUCATION

Miller, Paul A. "Strengthening the university continuing education mission". *New Directions for Continuing Education* (9) ; 1981 : 29-35.

Store, R.E. and Armstrong, J.D. "Personalising feedback between teacher and student in the context of a particular model of distance teaching". *British Journal of Educational Technology* 12(2) ; May 81 : 140-57.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Banerji, S.K. "What ails centres of higher learning". *University News* 20(2) : 15 Jan 82 : 42-3.

Raghavachari, V.P. Socialist education system of G.D.R.I. *Indian Education* 11(8-9) ; Nov-Dec 81 : 29-33.

INDIAN STATISTICAL INSTITUTE

203, Barrackpore Trunk Road
CALCUTTA 700 035 (India)

Summer School on Recent Developments in Statistical Methodology

May 1982

This School is being run from 10 May to 29 May 1982 at Karnatak University, Dharwad by the Indian Statistical Institute with partial support from University Grants Commission. The course is primarily intended for teachers and research workers in theoretical statistics at various universities and research organisations. One of the objectives of the course is to improve the teaching of statistics in universities and colleges and to introduce some fruitful areas of research. The course is intended to (i) presenting the participants some of the latest developments in selected areas and to (ii) introduce some new topics of research in these areas after a refresh course of the basic concepts. The areas proposed to be covered are (1) Statistical Inference, (2) Multivariate Analysis, (3) Design of Experiments and (4) Sample Surveys. The courses will be in the form of lectures followed by group discussions and seminars. Participants are expected to attend at least two/three of the four courses offered during the summer course.

The number of participants that will be admitted to the course is around 25. The University Grants Commission has agreed to meet the expenditure on travelling allowance and daily allowance for 20 participants from universities/colleges recognized by UGC as per its terms. The Institute plans to support upto 5 more deserving participants.

Interested people are requested to write to the following address for a brochure containing further details and application form.

Course Director
Summer School in Statistical Methodology
Math-Stat. Division
Indian Statistical Institute
203, B.T. Road, Calcutta-700 035

HARYANA AGRICULTURAL UNIVERSITY

HISSAR

Advertisement No. 1/82

Applications invited for following posts. Higher start outstanding qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc. according to University Rules. Applications of the candidates already in service must reach through proper channel upto the fixed date. Applications on prescribed form (obtainable free by sending self-addressed unstamped envelope size 23 x 10 cms. to Assistant Registrar(F), HAU, Hissar) accompanied by prescribed fee of **Rs 10/-** in the form of Crossed Postal Order in the name of Superintendent(G), HAU, Hissar payable at HAU Post Office Hissar. should reach Registrar by **23 3.1982** for posts at Sr. Nos. 1 to 40 and **16.3.1982** for remaining posts. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be superscribed as "APPLICATION FORM FOR THE POST OF————".

1. **Professor of Veterinary Medicine** : (One) : Essential : i) Second class B.V.Sc./B.V.Sc. & A.H. degree. ii) Second class M V.Sc. in Vety. Medicine. iii) Ph.D. in Veterinary Medicine. iv) Atleast 10 years experience of teaching/research in the field of Vety. Medicine out of which atleast five years should be as Associate Professor or of equivalent rank. Desirable : Advanced training in Veterinary Clinical Medicine.

2. **Professor of Feed Technology** : (One) : Essential : i) Second class B.V.Sc. & A.H./B.Sc. (An. Sc.)/B.Sc. (Ag.)/B.Sc. (Dairying). ii) Second class Master's degree with specialisation in Animal Nutrition. iii) Ph.D. in Animal Nutrition. iv) Ten years experience of teaching/research/extension in Animal Nutrition out of which atleast five years should be as Associate Professor or of equivalent rank. Desirable : i) Adequate experience in the procurement, handling and processing of feeds. ii) Training in Feed Technology.

3. **Professor and Forestry** : (One) : Essential : i) Second class B.Sc./B.Sc. (Ag)/B.Tech./B.E. ii) Second class A.I F.C. (Associate Indian Forest College)/Master's degree in Forestry or equivalent. iii) 10 years experience in Forestry, out of which 5 years should be in the rank of Associate Professor or equivalent. Desirable : Ph.D. in Forestry. ii) Experience of Post-graduate teaching and guiding research in Forestry.

4. **Professor of Animal Breeding** : (One) : Essential : i) Second class B.V.Sc. & A.H /B.Sc. (Ani. Sc.)/B.Sc. (Agri.)/B.Sc. (Dairying). ii) Second class Master's degree with specialization in Animal Breeding. iii) Ph.D. in Animal Breeding/Animal Genetics. iv) Ten years experience of teaching/research/extension in Animal Breeding/Animal Genetics out of which atleast 5 years should be as Associate Professor or of equivalent rank and evidence of having conducted independent research in farm animal breeding *in the form of published work in* scientific journals of repute. Desirable Training in Biological Statistics.

5. **Professor of Livestock Production & Management** : (One) : Essential : i) Second class B.V.Sc./B.Sc. (An. Sci.)/B.Sc. (Dairing)/B Sc. (Agri.). ii) Second class M.Sc./M.V.Sc. in any branch of Animal Sciences. iii) Ph.D. in any branch of Animal Sciences. iv) Ten years' experience of research/teaching/extension in Livestock Production and Management out of which atleast five years should be as Associate Professor or equivatent rank. Desirable : Experience in Management of large Animal Research Establishment.

6. **Professor of Agronomy** : (One) : Essential : i) Second class B.Sc. (Agr.). ii) 2nd class M.Sc. (Agr.) in Agronomy. iii) Ph D in Agronomy. iv) Ten years experience of teaching and research relating to Crop Management, Crop Husbandry and Soil Management and evidence of having conducted independent research and published its results in scientific journals of repute. Out of 10 years, 5 years should be as Associate Professor or of equivalent rank. v) Capacity for organisation as Head of a section or Department of a teaching or research institute. Desirable : i) Training in Soils and Plant Physiology. ii) Training in Agricultural Statistics and experience of designing field experiments.

7. **Professor of Pharmacology** : **(One)** : Essential : i) Second class B.V. Sc. & A.H. degree. ii) Second class M.V Sc. in Pharmacology. iii) Ph.D. in Vety. Pharmacology. iv) Atleast ten years experience of teaching and research in Vety. Pharmacology out of which atleast 5 years should be as Associate Professor or of equivalent rank Desirable : Advanced training in Physiological Chemistry/Toxicology.

8. **Professor of Botany** : (Leave Vacancy) (One) : Essential : i) Second class B.Sc. (Agri)/B Sc. with Botany. ii) Second class M Sc. in Botany. iii) Ph. D. in Botany. iv) Atleast ten years experience of teaching/research/extension in Botany out of which atleast five years should be as Associate Professor or equivalent with evidence of having conducted independent research and published papers in scientific journals of repute. Desirable : i) Capacity for organisation as Head of the Section/Department in a research/teaching institute. ii) Advanced training in any field of Botany.

9. **Senior Breeder (Feed) & Forage Sorghum)** : (One) : Essential : i) Second class B. Sc. (Ag.) B Sc. ii) Second class M.Sc. (Ag)/M.Sc. in Plant Breeding/Genetics/Ag. Botany. iii) Ph.D. in Plant Breeding/Genetics/Ag. Botany. iv) Ten years experience of research/teaching/extension in Plant Breeding preferably on forages out of which atleast 5 years should be as Associate Professor or of equivalent rank.

10. **Chief Scientist (Animal Breeding)** : (One) : Essential : i) Second class B.V.Sc & A.H /B.Sc. (An.Sc.)/B.Sc. (Dairying)/B Sc. (Agri.). ii) Second class Master's degree with specialisation in Animal Breeding. iii) Ph D. in Animal Breeding/Animal Genetics. iv) Ten years experience of teaching/research/extension in Animal Breeding/Animal Genetics out of which atleast 5 years should be as Associate Prof. or of equivalant rank and evidence of having conducted independent research in cattle breeding in the form of published work in scientific journals of repute.

11. **Senior Agronomist** : (One) : Essential : i) Second class B.Sc. (Agr.). ii) Second class M.Sc. (Agr.) in Agronomy. iii) Ph D. in Agronomy. iv) Ten years' experience in Research/Teaching/Extension Education in Agronomy out of which five years experience should be as Associate Professor or equivalent rank. Desirable : Evidence of guiding/monitoring research work independently in any branch of Agronomy. Preference will be given to the person having experience of research in Farming systems.

12. **Associate Professor of Mathematics** : (One) : Essential : i) Second class B.A. or B Sc. with Mathematics. ii) Second class M.A. or M.Sc. in Mathematics Pure Mathematics iii) Ph.D. in Mathematics. iv) Five years experience in Teaching or Research. Desirable : i) Teaching experience of post graduate classes. ii) Competence in Algebra and exposure to Statistics/Operational Research.

13. **Associate Professor of Rural Sociology** : (One) : Essential : i) Second class B.Sc. (Ag.)/B.V.Sc or B.A. ii) Second class M A. in Sociology or M.Sc. in Rural Sociology. iii) Ph D. in Sociology or Rural Sociology. iv) Five years' experience of teaching/research/extension. Desirable : i) Knowledge of basic statistical methods. ii) Experience should be preferably in rural sociology.

14 **Associate Professor of Hindi and Haryanvi Culture** : (One): Essential: i) Second class B.A. with Hindi.

ii) Second class M.A. in Hindi. iii) Ph.D. in Hindi. iv) Five years teaching/research/extension experience in Hindi language or promotion of Haryanvi culture. Desirable : i) Sound knowledge of Sanskrit, Haryanvi folklore and culture. ii) Publications in Hindi or Haryanvi culture.

15. **Associate Professor (Vety. Medicine)** : (One) : i) Second class B.V.Sc. and A.H. ii) Second class M.V.Sc. in Vety. Medicine. iii) Ph.D. in Vety. Medicine or allied fields. iv) Five years experience of teaching/research/extension in Vety. Medicine or allied fields.

16. **Associate Professor Helminthology** : (One) : i) Second class B.V.Sc. & A.H. ii) Second class M.V.Sc. in Parasitology with specialisation in Helminthology. iii) Ph.D. Veterinary Parasitology with specialization in Helminthology. iv) Atleast five years experience of teaching/research/extension in Vety. Parasitology/Helminthology.

17. **Associate Professor of Zoology**: (One): (i) Second class B.Sc. with Zoology (ii) Second class M.Sc. in Zoology. (iii) Ph.D. in Zoology preferably with specialization in Ecology. (iv) Five years experience of teaching/research/extension in Ecology preferably with reference to mites or rodents.

18. **Associate Professor Animal Production Physiology**: **(Leave Vacancy)**: (One): Essential: (i) Second class B.V.Sc./B.Sc. (Animal Sciences)/B.Sc.(Dairying)/B.Sc.(Agr.) (ii) Second class M.Sc. in Animal Production Physiology / Animal Physiology/Physiology. (iii) Ph.D. in any branch of Animal Production Physiology/Physiology with specialization in A.P.P. (iv) Five years' experience of teaching/research/extension in any branch of Animal Production Physiology.

19. **Associate Professor (Animal Nutrition)** : (One): Essential: (i) Second class B.Sc. (Ani. Sc. / B.V.Sc./B.V.A.Sc./B.Sc. (Agr.)/B.Sc. dairying (Dairy Husbandry). (ii) Second class M.Sc. in Animal Nutrition/Animal Physiology. (iii) Ph.D. in Animal Nutrition/Animal Physiology. (iv) Five years' experience of teaching/research/extension in Animal Nutrition or allied fields. Desirable: Experience in energy metabolism environmental physiology.

20. **Associate Professor (Animal Products Technology** : (One): (i) Second class B.V.Sc. & A.H./ B.V.A.Sc./B.Sc. (Agri.)/ B.Sc. (Ani. Sc.). (ii) Second class in M.V.Sc./M.Sc. (Ani. Sc.)/M.Sc. (Food Tech.) with specialization in Meat/wool technology. (iii) Ph.D. in Meat Technology/Wool Technology. (iv) Five years teaching/extension/research experience as evidenced by published work in journals of repute.

21. **Associate Professor (Agril. Engineering)**: (One): (i) Second class Bachelor's degree in Agril. Engg. (ii) Second class Master's degree in Agril. Engg. with specialization in Soil & Water Engineering/Process Engineering alongwith five years experience in Soil & Water Engineering/Process Engineering OR Ph.D. in Agril. Engg. with specialization in Soil & Water Engg./Process Engineering with atleast 3 years experrience in Soil & Water Engineering/Process Engineering.

22. **Associate Professor Foods & Dietetics**: (One): (i) Second class B.Sc. (Home Sc)/ B.Sc. (Agri.)/ B.Sc. (ii) Second class M.Sc. in Foods and Nutrition Dietetics/Institutional Management OR Diploma in Dietetics/Institutional Management. (iii) Ph.D. in Foods & Nutrition/Dietetics / Institutional Management. (iv) Five years experience of Teaching/Research in Foods & Nutrition/Dietetics/Institutional Management OR equivalent experence of working in a dietary Department of a hospital.

23. **Associate Professor of Physical Chemistry**: (One): (i) Second class B.Sc. (ii) Second class M.Sc. in Chemistry, preferably in Physical Chemistry. (iii) Ph.D. in Chemistry with specialization in Physical Chemistry. (iv) Five years experience of teaching/research in Physical Chemistry.

24. **Associate Professor (Biochemistry)**: (One) : (i) Second class B.Sc. (Agr.)/B.V.Sc./B.Sc. (ii) Second class M.Sc. in Biochemistry. *(iii) Ph.D. in Biochemistry (iv) Five* years experience in research/teaching in Biochemistry.

25. **Economic Botanist** (NSP): (One) : (i) Second class B.Sc. (Ag.)/ B.Sc. (ii) Second class Master's degree in Plant Breeding/Genetics/ Ag. Botany. (iii) Ph.D. in Plant Breeding/Genetics/Ag. Botany. (iv) Five years experience of research/teaching/extension in Plant Breeding with particular reference to production of Breeder Seed of different crops/varieties.

26. **Cotton Breeder** : (One) : Essential: (i) Second class B.Sc. Ag./B.Sc. (ii) Second class M.Sc. Ag./M.Sc. in Plant Breeding/Genetics/Agri. Botany. (iii) Ph. D. in Plant Breeding/Genetics/Agril. Botany. (iv) Five years professional experience of research/teaching/extension in cotton breeding.

27. **Heat Breeder**: (One): (i) Second class B.Sc. (Ag.)/B.Sc. (ii) Second class M.Sc. (Ag.)/M.Sc. in Plant Breeding/Genetics/Ag. Botany (iii) Ph.D. in plant Breeding/Genetics/Ag. Botany. (iv) Five years experience of research/teaching/extension in Plant Breeding/Genetics in Wheat Crop.

28. **Barley Breeder**: (One): (i) Second class B.Sc. (Ag.)/B.Sc. (ii) Second class M.Sc. (Ag.)/M.Sc. in Plant Breeding/Genetics/Agri. Botany. (iii) Ph.D. in Plant Breeding/Genetics/Agri. Botany. (iv) Five years' experience of research teaching/extension in Plant Breeding/Genetics preferably on barley.

29. **Horticulturist**: (One): Essential: (i) Second class B.Sc. or B.Sc. (Agri.) (ii) Second class M.Sc. (Agri.), Hort. (Pomology). (iii) Ph.D. in Hort. with specialization in Pomology. (iv) Five years experience of Research/Teaching/Extension in Horticulture (Pomology) as evidenced by publications in Scientific Journals. Desirable: (i) Experience/Training in designing and statistical analysis of field experiments on Horticultural crops. (ii) Experience in Management of Fruit Orchards.

30. **Geneticist**: (One): Essential: (i) Second class B.Sc. or B.Sc. (Ag.). (ii) Second class M.Sc. in Genetics/ Agril. Botany. (iii) Ph.D. in Genetics/Plant Breeding (iv) Atleast five years teaching and/or research experience as evidenced by research papers published in journals of repute. Desirable: Experience on working on wheat with specialization on disease resistance.

31. **Research Scientist (Anatomy & Histology** : (One) : (i) Second class B.V.Sc. and A.H. (ii) Second class Master's degree in Vety. Anatomy. (iii) Ph.D. in Vety. Anatomy. (iv) Five years experience of Research/Teaching in the above field. Desirable: Research experience on the gross Anatomy of buffalo/camel.

32. **Scientist (Foods & Nutrition)**: (One): Essential: (i) Second class B.Sc. (Home Science)/B.Sc. (Ag.)/ B.Sc. (ii) Second class M.Sc. in Foods and Nutrition/Biochemistry. (iii) Ph.D. in Foods and Nutrition/ Biochemistry with specialization in Nutrition. (iv) Five years experience of teaching/research extension in Foods & Nutrition/Nutritional Biochemistry, preferably in Food Nutrition. Desirable: Training/experience in modern analytical techniques.

33. **Scientist (Home Management)**: (One): Essential: (i) 2nd class B.Sc. Home Sc./B.Sc. Home Sc. (Hons.). (ii) Second class M.Sc. in Home Sc. with specialization in Home Management. (iii) Ph.D. in Home Management. (iv) Five years experience of teaching/research/extension in Home Management. Desirable: (i) Experience in guiding M.Sc. students.

34. **Research Officer (Vety. Parasitology)** : (One): Essential: (i) Second class B.V.Sc. & A.H. (ii) Second class M.V.Sc. in Parasitology (Entomology) (iii) Ph.D. in Parasitology with specialization in Entomology. (iv) Five years experience in research/teaching/extension in Parasitology (Entomology). Desirable: Experience in Biology and control of ticks.

35. **Research Officer (Biochemistry)**: (One): (i) Second class B.Sc./B.Sc. (Agr.) (ii) Second class M.Sc./M.Sc. (Agr.) in Biochemistry/Agril. Chemistry. (iii) Ph.D. in Biochemistry/ Agril. Chemistry. (iv) Five years' experience in the quality analysis work on field crops. Desirable: Research experience in quality aspects on rape-seed and mustard.

36. **Entomologist**: (Two): (i) Second class B.Sc. (Ag.). (ii) Second class M.Sc.

(Ag.) in Entomology. (iii) Ph.D. in Entomology. (iv) Five years' experience of teaching/research/extension in Entomology/Economic Entomology.

37. **Extension Specialist (Animal Science)**: (One): Essential: (i) Second class B.Sc. (Animal Sc.) or B.V. Sc. & A.H. or B.Sc. (Agri. & A.H.) with Animal Husbandry/Science [illegible] pertaining to Animal Husbandry/Science. (iv) Five years experience in extension/research/teaching in any [illegible] Education (ii) Experience and capacity for planning and organising livestock disease control programmes in rural areas. (iii) Familiarity with local Animal Husbandry problems.

36. **Economic Botanist (Oilseeds)**: (One): Essential: (i) Second class B.Sc [illegible] or B.Sc [illegible] in Plan [illegible] Ph.D. i [illegible] (iv) Five years experience of plant breeding Research preferably on oilseed crops. Desirable: (i) Training in Statistics with Special reference to designing field experiments. (ii) Training or experience of Agronomic Research.

39. **Deputy Comptroller**: (One): (i) At least second class M. Com. from a recognised University with atleast 5 years experience in Accounts in a Senior Position in Govt. Department/Semi. Govt. Institution/University OR Atleast second class graduate, or a Master's degree, with 10 years experience in Accounts including 5 years [illegible] Subordinate Accounts Service (SAS) examination held by Govt. of India or any State Govt. or its equivalent Accounts examination of Higher Standard held by any Agricultural University. Desirable: (i) Experience in budgetary/Audit work. (ii) Chartered Accountant/Cost Accountant.

40. **Senior Administrative Officer**: (One): Essential: (i) Atleast second class graduate from any recognised University. OR atleast a Master's degree from any recognised University. (ii) ten years office experience of a University or any other teaching/research institution or Central/State Govt. office or Central or State Government undertaking, out of which atleast 5 years should be in a supervisory capacity of not less than Class II rank or equivalent of the State Govt. Desirable: (i) Post-graduation qualifications. (ii) Experience of working in an Agricultural University. Note: One or more of the essential qualifications relaxable in case of exceptionally qualified/experienced candidates.

41. Assistant Scientist (Child Development): (One): (Discipline-Home Science with specialisation in Child Development).

42. Assistant Professor (Ag. Economics): (One): (Discipline:Agril. Economics).

43. Assistant Professor (Surgery): (Two): (Discipline-Vety. Surgery).

44. Assistant Professor (Zoology): (O [illegible]

[illegible]

(O [illegible]

46. Assistant Hospital Surgeon: (One): (Discipline-Surgery /Medicine/Gynaecology/Vety. Extension).

47. Assistant Cytogeneticist: (One): (Discipline-Genetics).

48. Assistant Scientist (Genetics Dept.) (Two).

49. Assistant Scientist (Microbiology): (One): (Discipline-Microbiology).

50. Assistant Scientist (Foods & Nutrition): (One): Discipline-Foods & Nutrition)

51. Assistant Professor (Foods & Nutrition): (One): (Biochemistry).

52. Assistant Scientist (Home Management): (One): Discipline-Home Science).

53. Assistant Professor (Home Management): (One): specialisation in Home Management.

54. Assistant Bacteriologist (One): (Discipline-Vety. Medicine/Vety. Bacteriology).

55. Assistant Scientist (Vety. Medicine): (Two): Discipline-Vety. Medicine/Proto.

56. Assistant Professor (Vety. Medicine): (Four) : (Zoology/Bacteriology).

57. Assistant Scientist (Vety. Gynaecology & Obstetrics): (One): Discipline-Vety.

58. Assistant Professor (Vety. Gynaecology & Obstetrics): Three Gynaeecology & Obstetrics.

59. Assistant Scientist (Vety. Pathology): (Four): Discipline-Vety. Pathology.

60. Assistant Professor (Vety. Pathology): (Two):

61. Assistant Scientist (Vety. Microbiology): (Two): (Discipline-Vety. Microbiology Bact. with specialisation in Virology/Immunology).

62. Assistant Virologist (One): (Discipline-Vety. Bacteriology/Virology).

63. District Extension Specialist (Nematology): (One): (Discipline-Nematology).

64. District Extension Specialist (Entomology):(Discipline-Entomology).

65. District Extension Specialist (Plant Pathology): (Four): (Discipline—Plant Pathology).

66. Assistant Scientist (Plant Pathology): (Two): (Discipline-Plant Pathology or Botany with specialisation in Plant Pathology).

67. District Extension Specialist (Agronomy): (Five): (Discipline. Agronomy).

68. Assistant Scientist (Agril. Economics): (One): Discipline—Agril. Economics.

69. Assistant Scientist (Evaluation): (Two)

70. Assistant Research Officer (Physiology): (One): (Discipline-Animal Physiology.

71. Assistant Scientist (Chemistry & Biochemistry): (One): (Discipline-Biochemistry.

72. Assistant Professor (Vety. Public Health): (Three): Discipline-Vety. Public Health.

73. Assistant Scientist (Vety. Public Health): (One): Pathology/Preventive Medicine/Microbiology/Parasitology).

74. Assistant Professor (Vety. Parasitology): (Two): (Discipline—Parasitology with specialisation in Entomology.

75. Assistant Professor (Livestock Economics): (One): (Discipline-Agricultural Economics/Dairy Economics/Livestock Economics).

76. Assistant Professor of Vety. Pharmacology: (One): (Discipline-Vety. Pharmacology).

77. Assistant Profesor (Clothing & Textiles): (Two): Discipline-Clothing & Textiles).

78. District Extension Specialist (Horticulture): (Two): Discipline-Horticulture.

79. Assistant Scientist (Horticulture): (Two).

80. Assistant Scientist (Agronomy): (Six): (Discipline-Agronomy)

81. District Extension Specialist (Vegetable): (Two): (Discipline-Vegetable)

82. Assistant Entomologist: (Two): (Discipline-Entomology).

83. Assistant Scientist (Entomology): (Six):

84. District Extension Specialist (Entomology): (One):

85. Assistant Research Officer (Entomology): (One).

86. Assistant Soil Chemist (Microbiology Department): (One): (Discipline—Agriculture Chemistry, Soil Science or Microbiology with specialization in Soil Microbiology).

87. Assistant Scientist (Animal Nutrition): (One): (Discipline-Animal/Poultry Nutrition).

88. Assistant Research Scientist (Animal Nutrition): (One): (Discipline-Animal Nutritionl).

89. Assistant Professor (Animal Nutrition): (Three): (Discipline-Animal/Nutrition).

90. Assistant Professor (Meat Technology): (One): (Discipline-Animal Products Technology).

91. Assistant Research Scientist (Anatomy & Histology): (One): (Discipline-Vety. Anatomy).

92. Assistant Professor (Animal Science): (Two): (Discipline---Any branch of Animal Science).

93. District Extension Specialist (Soils): (Two): Discipline-Soil Science.

94. Assistant Scientist (Soils): (Two):

95. Assistant Scientist (Plant Breeding): (Four): (Discipline-Plant Breeding).

96. Junior Gynaecologist: (One): Discipline-Vety. Gynaecology & Obstetrics).

97. Junior Scientist (Animal Nutrition Department): (One): (Discipline-Animal Nutrition/Biochemistry).

98. Assistant Scientist (Plant Physiology): (One): (Discipline-Plant Physiology)

99. District Extension Specialist (Animal Science): (One) (Discipline-Animal Science):

100. Assistant Professor (Vety. Physiology): (One): (Discipline—Vety. Physiology).

101. Assistant Professor in Vety. Anatomy: (One): (Discipline-Vety. Anatomy).

102. Assistant Poultry Nutritionist: (One): (Discipline-Animal Nutrition).

103. Assistant Professor of Agricultural Meteorology: (One): (Discipline-Physics/Agricultural Meteorology/Meteorology with training in Agricultural Meteorology).

104. Assistant Meteorologist: (One): (Discipline-Physics/Agril. Meteorology/Meteorology).

105. Assistant Professor Animal Breeding: (Two): (Discipline-Animal Breeding with experience of teaching or research in Sheep & Goat production.

106. Assistant Scientist (Statistics): (One): (Discipline. desirable).

Qualifications (For posts at Sr. Nos. 41 to 106 : Statistics). (i) Atleast second class at Bachelor's level. (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the disciplines mentioned against each post. OR atleast second class Master's degree followed by Ph.D. in the disciplines mentioned against each post.

107. **Assistant Professor (Wool Technology)**: (One): (i) Second class B.V.Sc. & A.H/B.V.A.Sc./B.Sc. (Agri.)/B.Sc. (Ani. Sc.). (ii) M.V.Sc./M.Sc. (Food Tech.)/M.Sc. (Ani. Sc.) in the first class or with an OGPA of not less than 3.2/4.00 or equivalent OR atleast second class Master's degree in the above disciplines followed by Ph.D. in any branch of Animal Products Technology preferably Wool Technology or Meat Technology.

108. **Assistant Professor (A.I.)**: (One): (i) Second class B.V.Sc. & A.H./B.Sc. (An.Sc.)/*B.Sc. (Ag.) with A.H. specialization*/B.Sc. (Dairy Husbandry). (ii) Master's degree in Animal Physiology or equivalent with specialisation in A.I. or Reproduction in the first class or with an OGPA of not less than 3.2./4.00 or equivalent OR atleast second class Master's degree in the above disciplines followed by Ph.D. in Animal Physiology with specialization in A.I. or Reproduction.

109. **Assistant Professor SA & VC Classes**: (One): Essential: (i) Second class B.V.Sc. & A.H. (ii) Atleast five years experience in Teaching/Research/Extension. Desirable: M.V.Sc. degree in any discipline of Vety. Science.

110. **Assistant Professor Animal Production Physiology**: (One): (i) Second class B.V.Sc./B.Sc. (An. Sc.)/B.Sc. (Agr.) with A.H. specialization/B.Sc. (Dairying Husbandry). (ii) Master's degree in Physiology or equivalent in thefirst class or with an OGPA **of not less than 3.2/4.00 or equivalent OR** atleast second class Master's degree in the above disciplines followed by Ph.D. with specialisation in any branch of Production Physiology.

111. **Veterinary Assistant Surgeon**: (One): Second class B.V.Sc. & A.H. or equivalent.

Note:
1. For posts at Sr. Nos. 1 to 38, one or more qualifications relaxable in case of candidates found otherwise outstanding.
2. Special weightage will be given to extension experience possessed by the candidates for posts in disciplines amenable to extension.
3. For posts at Sr. Nos. 41 to 110, one or more qualifications relaxable in case of candidates found otherwise very suitable.
4. For posts at Sr. Nos. 41 to 110, persons who do not possess Ph.D. at the time of their selection shall not be allowed to cross the stage of Rs. 1300/- in the scale of Rs. 700-40-1100-50-1600.
5. No. of posts mentioned against each post is likely to vary.
6. Those who have already applied for the same post with the same designation and same qualifications, need not apply again.
7. For all the posts, reservation for different categories will be as per Haryana Government Rules.

Pay Scales :

Sr. No. of post	Pay scale	Total emoluments at the initial of the pay scale (exclusive of House Rent)
1 to 11	Rs. 1500-60-1800-100-2000-125/2-2500.	Rs. 2250/-
12 to 38	Rs. 1200-50-1300-60-1900.	Rs.1905/-
39 & 40	Rs. 1100-50-1300-60-1600.	Rs. 1805/-
41 to 110	Rs. 700-40-1100-50-1600.	Rs. 1268/-
111	Rs. 550-25-750/30-900.	Rs. 989/-

SAMBALPUR UNIVERSITY

JYOTI VIHAR: BURLA

SAMBALPUR

Advertisement No. 3915 ESTT. II
Dated 18-2-82

Applications in the prescribed form are invited for one post of Reader in Anthropology and Sociology in the scale of pay of Rs. 1200-50-1300-60-1900/- in the University Post Graduate Department of Anthropology and Sociology at Jyoti Vihar, Burla. The post carries usual benefits as per rules of the University.

Qualification

(i) A consistently good academic record with first or high second class Master's Degree in the concerned subject or equivalent Foreign Degree with Grade B+or 55% marks which may be relaxed in case of candidates otherwise found suitable.

(ii) Good academic record with a Doctorate Degree or equivalent published work.

(iii) Evidence of active participation in research.

(iv) Eight year's experience of Teaching and/or Research out of which at least five years shall be as Lecturer in the University Post Graduate Departments/College at Honours/Post Graduate level.

Specialisation required : Physical Anthroplology.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of **Rs. 15/- (Rupees fifteen)** only. Candidates intending to receive forms by post are required to send (a) Crossed Postal Order of **Rs. 15/-** payable to the Finance Officer, Sambalpur university Jyoti Vihar, Burla (b) a self addressed envelope (23 cm x 10 cm) with postage stamps worth **Rs 3.30** affixed to it with the words "APPLICATION FORM FOR TEACHING POSTS IN SAMBALPUR UNIVERSITY" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of applications in the Office of the University at Jyoti Vihar, Burla, Sambalpur (Orissa) is **19.3.1982.** The candidate will be required to appear for an interview before a Selection Committee at their own expenses.

CORRIGENDUM

Advertisement No. 2345/
Estt. II Dated : 25.1.82

Specialisation for the Post of Reader in English.

The following be read in respect of field of specialisation for the post of Reader in English.

(i) Linguistics & teaching of English.
or
(ii) Comparative Literature with special reference to English, Greek, Sanskrit & Oriya Literatures.

The last date of receipt of application forms for the post of Reader in English is extended upto **19.3.1982.** Other terms and conditions remain unaltered.

N. Mohapatra
REGISTRAR

PANJAB UNIVERSITY
CHANDIGARH

Advertisement No. 2/82

The Vice-Chancellor will be pleased to correspond with eminent Scholars of Panjabi Language, besides possessing Proficiency in Hindi and Sanskrit Languages and Literature for appointment as Professor in Guru Ravi Dass Chair. This is a tenure appointment for a period of three years in the first instance. The post will be in the pay-scale of Rs. 1500-60-1800-100-2000-125/2-2500 with ancillary benefits.

Those interested are required to write to the Vice-Chancellor giving their bio-data and a list of their publications by **March 10, 1982.**

HARYANA AGRICULTURAL UNIVERSITY
HISSAR

Advertisement No. 2/82

Applications invited for following posts. *Higher start outstanding* qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc. according to University Rules. Applications of the *candidates already in service must* **reach through proper channel upto the fixed date. Applications on prescribed form (obtainable free by sending self-addressed** unstamped envelope size 23 x 10 cms. to Assistant Registrar(F), HAU, Hissar) accompanied by prescribed fee of **Rs. 10/-** in the form of Crossed Postal Order in the name of Superintendent(G), HAU, Hissar payable at HAU Post Office Hissar, should reach Registrar by **23-3-1982**. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be supperscribed as "APPLICATION FORM FOR THE POST OF———————."

1. **Professor of Eminence in Agril. Economics (Sir Chhotu Ram Chair)** : (One): Eminent Scientist of National and International repute with distinguished and productive record of work in the discipline.

2. **Director Students Welfare** : (One) : Essential : (i) A good second class Master's degree in Arts, Science, Agri*culture or Veterinary Science. (ii)* At least ten years experience of teaching in a college in a responsible position and evidence of having engaged himself in extra-curricular activities (iii) *Wide experience of students' problems* **and capacity to understand them and win students confidence. Good personality.** (iv) Administrative ability and capacity to work *in a team and for* instilling in students a sense of pride institutional traditions. OR Retired Army/Navy/Air Force Officer being at least graduate and of the rank not below that of a full Colonel. Desirable: (i) Training and experience in organising sports. (ii) Age preferably between 40 to 50 years. (Note : One or more qualifications relaxable in case of candidates found otherwise outstanding).

Note : For both the posts, those who had applied earlier, need not apply again

Pay Scales

Sr. No.	Pay scale	Total emoluments at the initial of the pay scale (exclusive of House Rent)
1.	Rs. 3000/- plus allowances	Rs. 3650/-
2.	Rs. 1500-60-1800-100-2000.	Rs. 2250/-

REGISTRAR

TRAVEL GRANTS

The U.S. Educational Foundation in India, "Fulbright House", 12 Hailey Road, New Delhi-110001 invites applications no later than **April 30, 1982**, for a few Travel Only grants to the United States from Indian scholars who have research or teaching assignments in the U.S. for 1982-83. Only those with programmes for a minimum period of **three months** will be considered.

Candidates must :

1. have a Ph. D. Degree or equivalent published work
2. be Indian citizens and be present in India at the time of application
3. be proficient in English
4. be in good health
5. not have been in the U.S. during the last four years to teach or do research
6. be accepted by a recognised U.S. university of research institution for post-doctoral research and/or as a visiting lecturer and must have assurance of dollar finance to cover their expenses in the U.S. for the duration of the assignment. The letter of acceptance must show the nature, and duration of the assignment, and must be accompanied by evidence of dollar support, at the rate of not less than $6,000 and not more than $20,000 per academic year. The evidence of dollar support could be in the form of a grant or fellowship offered by American universities or research institutions or by Indian universities or research institutions.

The grant will provide round-trip economy class air travel, by the most direct route, from the candidate's ordinary place of residence or his academic institution to his U.S. institution and back. Excursion fare tickets valid for 120 days will be provided for those with programmes of less than four months duration in the U.S. Travel will be arranged by the Foundation, and grantees must travel on U.S. visas issued against the IAP-66 provided by the Foundation and must conform to rules and regulations of the U.S. Government applicable to all exchange-visitor visa holders.

For application forms and further details contact the Director, U.S.E.F.I., "Fulbright House", 12 Hailey Road, New Delhi-110001 before **April 30, 1982.**

JAWAHARLAL NEHRU UNIVERSITY

New Mehrauli Road, New Delhi 67

Advt. No. Aca. III/4/82

Applications in the prescribed form are invited for the post of Lady Medical Officer (Reserved for Scheduled Caste) in the scale of pay of Rs. 700-40-900-EB-40-1100-50-1300, in the Health Centre of the University.

Essential Qualifications

A good M.B.B.S. or equivalent Medical degree recognised by the Indian Medical Council with one year compulsory rotatory internship.

Experience

Should have worked in a responsible position with 2 to 3 year's experience of handling in and out patient emergencies and experience in handling obstetric and gynaecological problems.

Desirable Qualifications

1. 1 year's house job or residentship with minimum of 6 months in Obstetrics and Gynaecology
2. P.G. Diploma/Degree in Obstetrics & Gynaecology with administrative experience.

Job Description

1. To look after—
   - i) the comprehensive health care of the student community of the University;
   - ii) emergency cases outside the health centre hours day and night.
2. To conduct—
   - i) medical examinations of the students food handlers in hostel messes, candidates for employment in the University etc.
   - ii) inspection of eating places in the University campus particularly the canteens and hostel messes.
3. To assist in general administration of the Health Centre and to assist in looking after clinical laboratory, dispensing, sterilization etc.

She will be required to stay on the Campus subject to availability of accommodation.

Relaxation in any of the qualifications may be made in exceptional cases in favour of persons of high academic or professional distinction.

It will be open to the University to consider the names of suitable candidates who may not have applied.

Benefits of C.P. Fund-cum-Gratuity G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules

Persons already in employment should route their applications through proper channel.

Second class (Mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications on the prescribed form obtainable free of cost from the Section Officer (Academic Branch-III) of the University by sending him a self-addressed and stamped enveloped (affixing postage stamps worth **Rs. 2.85**) of 23 cm. x 10 cm. size, should reach the Assistant Registrar (Academic), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by **8th March, 1982.**

PUNJABI UNIVERSITY

PATIALA

Advertisement No. 43/SPS PRO/Estt./81/-NB

1. **Professor in Astronomy and Space Science : (One).**
   (Grade Rs. 1500-60-1800-100-2000-125/2-2500).

Qualifications

An eminent Scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. **Readers in Business Management:** (Two).
   (Grade Rs. 1200-50-1300-60-1900).

Qualifications

- a) A degree in Engineering Technology with a doctoral degree or M. Tech. or M. Phil. in Business Management with B. Tech. and specialization in Production/Materials Management. Evidence of being actively engaged in (i) Research or (ii) Innovation in teaching methods or (iii) Production of teaching materials.
- b) About 5 years experience of teaching, industrial or research. This can be relaxed in the case of candidates otherwise found suitable.
  One of the posts is in the area of Production Management, while the other is in the area of Materials Management.

3. **Reader in Public Administration** (One).
   (Grade Rs. 1200-50-1300-60-1900).

Qualifications

- a) Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.
- b) About 5 years experience of teaching and/or research provided that at least three of these were as Lecturer or in an equivalent position. This condition is relaxable in the case of candidates with outstanding research work.

4. **Junior Research Fellows (U.G.C.) : (One each in Geography, Philosophy, Punjabi, History and Public Administration).** (@ Rs. 600/- p.a. all inclusive).

Qualifications

Junior Fellowship is open to persons preferably below the age of 30 years, who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B+ in the seven point grade system).

5. **Department of Mathematics Research Scholar in Statistics :** (One). (Tenable for two years in the first instance @ Rs. 600/- p.m.) all inclusive).

Qualifications

Candidates should possess at least second class Master's degree with at least one year teaching research experience after obtaining the Master's degree provided that the condition of experience may be relaxed in the case of 1st class M.A./M.Sc., provided further that a candidate with atleast 55% marks both in B.A./B.Sc. and M.A./M.Sc. could also be considered in case no first class M.A./M.Sc. is available.

General

Candidates for teaching & research posts should possess working knowledge of Punjabi upto Punjabi Praveshika standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth **Rs. 5/- (Rs. 2/-** for candidates belonging to Scheduled caste/tribes and backward classes) drawn in favour of the Registrar, Punjabi University, Patiala should reach the University by **15.3.82.** The forms can be had from the Production & Sales Officer, Publication Bureau, Punjabi University, Patiala on payment of **Re. 1/-** by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. stamped with 35 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF...

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **18.3.82.**

REGISTRAR

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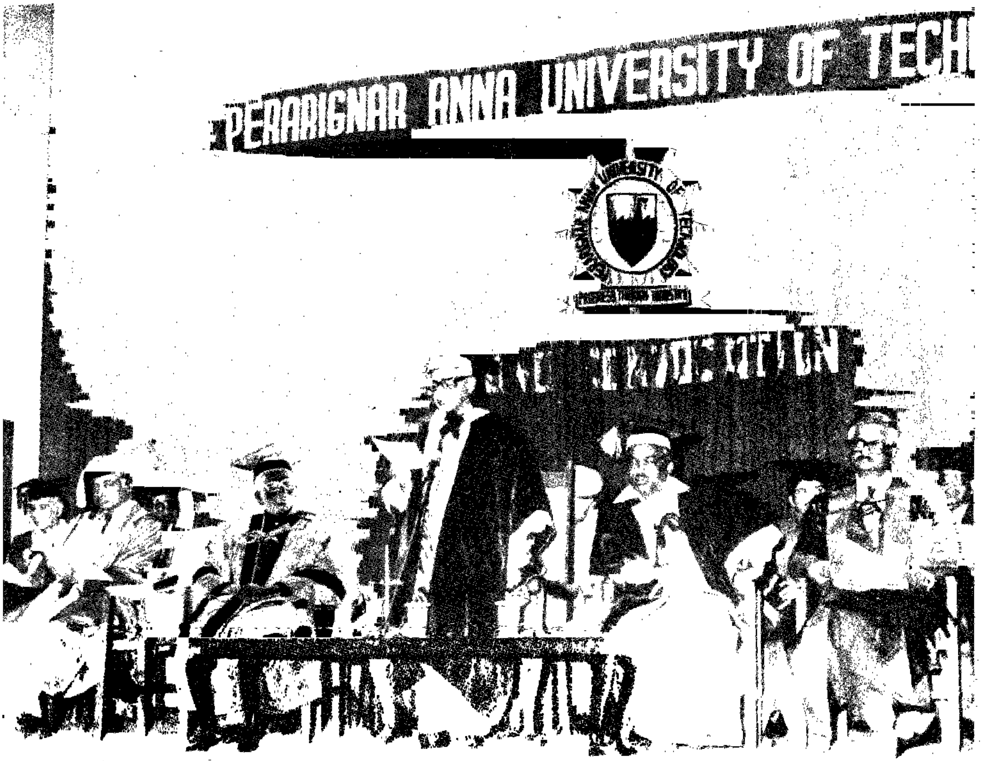
University

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH MARCH 15, 1982



PERARIGNAR ANNA UNIVERSITY OF TECH

Photograph taken on the occasion of the convocation held at Perarignar Anna University of Technology, Madras.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

CLASSIFIED ADVERTISEMENTS

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY-76
P.O. I.I.T., POWAI,
BOMBAY-400 076

Advertisement No. A-59/82

Applications are invited for the following permanent posts at this Institute, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, P.O. I.I.T., Powai, Bombay-400 076 on request accompanied by self-addressed envelope (25 cm x 10 cm). Applicants should give an account of their academic and professional record and list of research publications. Persons employed in Government/Semi-Government Organisations or Educational Institutions should apply through proper channel. Indian candidates abroad may apply on plain paper in duplicate. The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those admissible to the Central Government Employees stationed at Bombay. Depending on qualifications and experience, higher salary may be offered. Completed applications should reach the Registrar, I.I.T. Powai, Bombay-400 076 on or before **10th April, 1982.**

Some posts of Lecturer are reserved for candidates belonging to SC/ST community.

Assistant Professor : Scale of pay Rs. 1200-50-1300-60-1900.

Lecturer : Scale of pay Rs. 700-40-1100-50-1600.

Qualifications & Experience

1. *Department of Civil Engineering*

Assistant Professor

Degree in Civil Engineering with Ph.D. or Master's degree in the field of Remote Sensing as applied to Civil Engineering Problems. At least 5 years of Professional/field/research experience particularly in the field of image processing and digital image interpretation as applied to water resources and management.

Provided further that candidates not possessing Ph.D. may also be considered if they have to their credit equivalent published research work or design/development work of high standard either in an Institution or in an Industry.

2. Department of Humanities & Social *Sciences*

Lecturer

Master's degree in Sociology with specialisation in General Sociology, Political Sociology and Social Theory and Social Change. First Class at Bachelor's degree and/or Master's degree level.

One year's relevant professional experience.

3. Industrial Design Centre

Lecturer in Product Design

A good degree in Mechanical Engineering and a postgraduate education in Product Design or Engineering Design. Relaxable in cases of candidates with proven ability.

At least five years' experience in Product Development.

INDIAN INSTITUTE OF TECHNOLOGY

KANPUR

Advertisement No. 8/82

Applications are invited exclusively from S.C./S.T. candidates for six positions of Research Associates in the various Departments and Inter-disciplinary Programmes of this Institute on a fixed monthly emoluments, as may be determined by the Selection Committee within the range of Rs. 1100-1500 per month depending on qualifications and experience of the candidates.

Selected candidates will be associated with the on-going research programmes of the Institute. They may also be given teaching responsibilities. The initial appointment will be for six months from the date of joining but can be extended upto two years. Recruitment will be done only in such Departments and disciplines where suitable applications are available.

Areas

Aeronautical Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering including Electronics and Communication Engg. Mechanical Engineering, Metallurgical Engineering including Mineral Engineering and Ceramics, Chemistry, Humanities and Social Sciences including Economics and Psychology, Mathematics including Statistics, Physics, Computer Science, Materials Science, Nuclear Engineering and Technology and Industrial Management Engineering.

Qualifications

Ph.D. or equivalent degree with good academic background and adequate research development experience resulting in research work of good quality.

M.Tech. in Engineering/Technology with at least three years of teaching research-industrial experience with good record outside the work done for the degree.

The candidates must have ability for research evidenced by good publications or developmental work in any one of the aforesaid areas of specialisations.

Applications alongwith postal order of Rs 1.87 in the name of the Registrar, Indian Institute of Technology, Kanpur may be submitted on plain paper giving details of academic background (including class awarded) research/teaching/industrial experience, list of publications and an adequate outline of proposed research and names of two referees to the Dean of Faculty, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P. (INDIA) **on or before April 15, 1982.**

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR-388120

Notification No. EST/7 (1981-82)

Applications are invited in the prescribed forms available from the University office on payment of **Re.** 1/- in cash or by Indian Postal Order for the following posts so as to reach the under signed on or before **31-3-1982** :

Sr. No.	Name of the Post	Scale of Pay
1.	Professor of Physics (Solid State Electronics, Quantum Electronics and Digital Electronics)	Rs. 1500-60-1800-100-2000-125/2-2500.
2.	Lecturer each in : (i) English and (ii) Foods and Nutrition in the Post-graduate Department of the University	Rs. 700-40-1100-50-1100-Assessment-50-1600.

The details of the prescribed qualifications etc. will be supplied alongwith the application forms.

All the posts carry the benefits of Dearness Allowance, Provident Fund and Gratuity as per rules of the University.

Preference will be given to the qualified candidate belonging to Scheduled Castes/Scheduled Tribes, Socially and Educationally and/or Economically Backward Class.

R. C. Thakkar
REGISTRAR

UNIVERSITY NEWS

VOL. XX MARCH 15
No. 6 1982

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IN THIS ISSUE

Knowledge Engineering 208

Convocation

Science & Engineering 213
Medical Research 214

Campus News

Seminar on basic sciences research 217
Political Science conference at Shivaji University 218
IUACE annual meeting 218
Academy of vedic sciences 219
Career information programme at KU 220
Training for public health engineers 220

Agriculture

Konkan Krishi Vidyapeeth releases 'RATNA' 221
ICAR programme to develop hybrid rice 221
National symposium on cattle health at PAU 222
German gift for HAU 223

News from Abroad

Education in the USSR 224
Educational innovations 224
Research in Progress 225
Theses of the Month 226
Additions to AIU Library 229
Classified Advertisements 230

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor: M.S. Ramamurthy

57th Annual Session of AIU meets at Bombay

The 57th annual conference of the Association of Indian Universities was held at Bombay University on February 20 & 21, 1982. The following recommendations were made at the conference.

"This 57th Annual Conference of the Association of Indian Universities reviewed the prevailing situation with regard to "Peace on the Campus" and has come to the conclusion that the problem has assumed the proportions of a crisis which is not imaginatively and firmly dealt with without further loss of time is bound to lead to the complete breakdown of the University system. Such sinister forces as undermine the credibility of the university system and erode its capacity to maintain its autonomy need to be effectively checked so that the image of the Vice-Chancellors who are the chief executive heads of universities is preserved without any defacement. The Conference specifically proposes that the Central and State Governments as well as the UGC should take due cognizance of this issue and requests that steps be taken by them to ensure the normal functioning of the universities, with every section of the university community being made aware of its responsibilities and obligations.

2. To this end the Conference specifically requests the Central and the State Governments to use their authority in a meaningful way to curb and control the unruly and anti-social elements playing havoc on the campus so that the University authorities may be enabled to preserve peace on the campus. It condemns the tendency on the part of agitators to gherao the University authorities and calls upon the State Government to deal with "gherao" as a cognizable offence and take prompt and necessary action on that basis.

3. This conference requests the State Governments to help universities by providing them with prompt and effective protection in times of campus troubles when requests for the same are made to the police authorities.

4. It recommends that a "Grievances Machinery" be set up in every university to deal with the grievances of teachers and students as well as the administrative staff of all categories. The composition of this machinery should be representative in character while being left to the discretion of the Vice-Chancellors.

5. The Conference requests the State Governments to help the universities, most of which are plagued by serious financial constraints, with adequate funds by way of block grants and ad hoc grants so as to enable them to fulfil satisfactorily their academic responsibilities, such as, providing for student welfare services, sports and games, cultural activities, etc. for the benefit of students and also to discharge their administrative obligations in a meaningful and effective manner.

6. The Conference recommends that the Central/State Governments treat the administrative, ministerial staff and other employees of the universities as on par with their counterparts in Government service in respect of pay scales, service conditions and other benefits etc. and assess their grants accordingly.

7. The Conference recommends that universities institute a system of annual assessment of the academic work of teachers so that their performance and achievements in the fields of teaching, research and extension as well as their conduct in respect of the maintenance of discipline and proper running of the university may be duly reviewed and the teachers concerned advised, guided or directed."

(Continued on page 216)

Knowledge Engineering*

Knowledge is now recognised as a basic input for the sustenance and growth of the society. If one looks at the history of modern civilization as well as the growth trend of the world society one would find that the changes which have taken place during the last three centuries are much more in terms of magnitude and dimensions than the entire changes which have taken place in the human history of many thousand years. The changes have been in terms of living habits, modes of behaviour, methods and source of satisfying human needs, etc. Again if one looks at the pattern of growth which has taken place during the last four decades, one would find that the changes of the last four decades are more than the changes which have taken place in the last three preceding centuries. The basic reason for this accelerating rate of change in society is the knowledge explosion. Knowledge is growing at such a fast speed that every 6 to 7 years it is getting doubled and older knowledge is becoming obsolete.

The knowledge explosion has pervaded all walks of life of mankind. Whether we take into consideration industrial system, educational system, transport system, health care, agricultural technology, living habits or social and cultural values, all have been changing at a rapid rate largely because the profile of man has been changing fast. Knowledge explosion has changed the personality of the man.

One of the biggest challenges faced by the society is the challenge of using the knowledge generated in the society. Taking the case of India itself we know that we have more than three million educated unemployed today. It is the enormous waste of national resource. Knowledge acquisition is possible only at a very high cost. In India we have more than 100 universities today and a very large number of colleges with different disciplines. This has made possible a phenomenal increase in the number of educated young people. But the country is not able to provide adequate jobs to these people. The problems of socio-political turbulance we have in India, today, can partly be attributed to the problems of unemployment and semi-employment particularly among the educated people. Similarly it is challenging task to optimise the knowledge of the people who are in gainful employment.

Industrial engineering & knowledge

Industrial Engineering is concerned with design, improvement and setting up of systems of men, materials and machines for optimum results. These systems have been changing with time, technology and value systems. Man in his quest for better quality of life has been harnessing the natural resources to his advantage. In this long history man has passed through several stages of technology, methods and organisation of human activity. In the recent past this development is characterised by labour intensive, capital intensive and knowledge intensive phases. There was a time when productivity of human effort was the main task. This led to labour saving devices resulting in capital intensification. The drive to increase labour productivity resulted in capital intensification. The drive to increase capital productivity is now leading to knowledge productivity. You can't press the button any harder and make the automated equipment run any faster. You have just to find ways of pressing it more intelligently. Most people appreciate the principle of muscle or mechanical leverage. Mental leverage is not widely appreciated.

The Industrial Engineering was earlier concerned with design and improvement of systems of men, materials and machines for making human efforts more productive. Techniques of time and motion study, work simplification, methods improvement, work study, work measurement and in later years human engineering were employed to make work more productive. These efforts led to replacement of human effort with machines and men had to acquire skills of manipulation, perception, judgement, evaluation and decision making on the technical point. Simultaneously, there was change in the organisation of work. The scale of operations became bigger, the technological contents increased, simple mental activities got automated, operations became more critical in the sense that they had to be operated at very near than top performance levels.

Today growth is not achieved only on addition of capital or resources of men and material but much more on Technology and application of knowledge. Modern civilization is characterised by knowledge explosion, complex organisations, complex systems of goods and services, etc. A complex of activities, inter-related and coordinated by thousands of systems and sub-systems at micro and macro levels make today's world.

Creation, operation and maintenance of such complex systems of human effort and skills, machines and materials need application of knowledge of the variety, specialisation and intensity never before required in human history. The principal task of modern management is to make knowledge more productive.

Knowledge—a resource

In today's business and industry knowledge is the most import resource. Knowledge should get the treatment of resource. It needs to be consciously and deliberately and intelligently acquired, possessed, grown or developed and preserved as a resource par excellence. Making resources productive is the specific job of management and among this knowledge productivity is most exciting and rewarding management objective.

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*This is the text of second Dr. Deepak K. Merchant Memorial Lecture delivered at the Indian Institute of Technology, Bombay by Shri Duleep Singh, Chairman and Managing Director, Rashtriya Chemicals & Fertilizers Ltd.

Knowledge—productivity

Knowledge is sets of information contained in books, drawings and documents, computor memory and human brain. This knowledge is made productive by man through his mental faculty. His ability to not only intelligently arrange information, develop their inter-relationship, memorize, select the [illegible] information, manipulate, interpret, evaluate [illegible] also create new information [illegible] all nature's creation. Harnessing of these abilities for productive purposes for the welfare of human beings and for improving the quality of life is the key task of management.

Improving knowledge productivity is not only improving the productivity of man with knowledge or the knowledge worker but it is concerned with the whole lot of things related to gathering of knowledge, upgrading knowledge, developing knowledge, creating new knowledge, selecting the appropriate knowledge, apply knowledge, effectiveness of knowledge, efficiency of knowledge application and the motivation of knowledge possessor, applier and creator. Indeed knowledge has to be engineered for optimum results.

Knowledge engineering

Knowledge engineering may be defined as using engineering approach to all factors including human factors governing the utilization of knowledge for production of goods and services. It encompasses all principles, practices and techniques relating to:

i) Identification of key knowledge areas of a business;
ii) Acquisition of the needed or the appropriate knowledge;
iii) Possession and preservation of knowledge;
iv) Development of knowledge including creation of new knowledge;
v) Evaluation of the effectiveness of knowledge:
vi) Evaluation of the efficiency of knowledge application;
vii) Systems, procedures and methods of application;
viii) Automation of knowledge application—use of computors;
ix) Improving creative ability of knowledge workers;
x) Cybernatics;
xi) Motivation of knowledge workers;
xii) Organisation of knowledge workers;
xiii) Design of job or assignment of knowledge workers;
xiv) Dynamics of behaviour of knowledge workers and
xv) Remuneration of knowledge workers.

Knowledge engineering is needed in all areas of human activity for obtaining the best out of available knowledge. It is needed in Research & Development activities and Design & Engineering field; in construction activities and manufacturing activities; in offices, hotels and hospitals; in entertainment field; in transportation activities—in fact in all activities where knowledge is employed.

Knowledge engineering is concerned with all the three hardware, humanware and software of knowledge. In the hardware are the computers and other devices which can store knowledge in bits of information, enable access to the relevant knowledge, perform standard programmed knowledge operation, simulate mental processes and produce information in transferable form. The humanware is the most fantastic, versatile, veriable, limitless in capability—the nature's most glorious creation—the man or more precisely the human brain suitably educated and trained. In the software are the systems and procedures, computer programmes and the management processes of organisation, staffing, planning, direction, control and motivation.

Techniques of knowledge engineering

Most of the principles and techniques of Industrial Engineering (IE) can be and have been adapted to improve mental activities, application of knowledge and productivity of knowledge worker. O&M (Organisation & Methods) studies in offices and clerical activities were the very early application of IE to mental work. Design of systems and procedures for clerical and paper work and planning and control processes for efficient conduct of operations and management of men, machines and materials were part of IE application. Development of models of industrial and business activities and application of logic, mathematics and science to optimise the results was the next phase of use of IE approach in the field known as Operations Research. Simultaneously, with the advent of business machines and computers, initially simple mental operations and later complex tedious operations were mechanised thus multiplying manifold the human capability and relieving him of the drudgery of monotonous and tedious repetitive operation.

Management of knowledge work

Industrial Engineering techniques of studying the time required to perform activities has been utilized to improve time utilization of knowledge workers. It is possible to find the distribution of available time over the various types of mental processes and associated activities. It should then be possible to devise a desirable distribution of time over various activities to improve the overall productivity of the knowledge workers. A knowledge worker may spend his time in the following ways :

a) On activities not related to the specific knowledge possessed.
b) Use of relevant knowledge on non-productive activities.
c) Use of relevant knowledge on meaningful activities.

It is obvious that greater the problem of time spent on the last type of activity, higher would be the productivity.

Assignment control & design of job

Unlike the manual skilled man, a knowledge worker can perform a large variety of tasks. However, he cannot perform all of them with the same ease and result. An important aspect of knowledge work is an effective assignment control system wherein a person is assigned tasks where his knowledge and skill best fit the needs and results could be produced. It is the responsibility of management to place people on tasks where specific strengths are likely to produce disproportionately large and disproportionately different results.

It would thus be seen that productivity of a knowledge worker is very much dependent on the design of his job. The job should contain tasks which are relevant to his specific knowledge and specialisation. The tasks should provide adequate variety to prevent boredom. The task should be challenging enough to satisfy his knowledge application and creative urges. They should at the same time be achievable in terms of results and successes to fulfil his achievement satisfaction needs. The job should provide opportunity for growth in competence and advancement on job. Motivation has more to do with actual work itself and not with its situation. To sustain high motivation a job must embody motivators.

Improving creativity

Possessing knowledge is one thing and the way it is applied for result is another thing. It is necessary to research the mental processes, the logical sequence and the step involved for optimum results from application. For example there has been some fruitful research in the processes of creative thinking. Programmes have been drawn up for stimulating creative abilities of persons through training. Certain procedures such as Brain Storming etc. have been developed for obtaining creative ideas.

Improving problem solving abilities

A business organisation is a set of problems to be solved. The primary role of managers (Knowledge Worker) is true definition and solution of problems through the process of information gathering and analysis. The most important step is to recognize that a problem exists or is about to happen and to know its cause. The systematic procedure for solving problems involves problem definition, problem analysis, test for causes and varification of cause.

The problem solving exercise must result in a decision for action. While problem analysis deals with the process of discovering the cause of a problem, decision making involves estimation of the future. This part of the mental process is more subjective, more dependent on value judgement and more subject to qualitative choice. Nevertheless it is a rational process. It is selection from amongst possible alternatives and involves a systematic procedure of (a) defining objectives (b) establishing decision criteria (c) developing alternatives (d) organising information (e) evaluating alternatives and (f) making the decision.

The last step in the process is action planning. Unless plans and decisions are converted into action, they are useless. The action planning process involves (a) setting action objectives (b) developing courses of action (c) determining action steps (d) establishing coordinated control to ensure actions are taken according to plan.

Systems engineering & knowledge

Knowledge engineering is closely linked with establishment of appropriate systems. Systems are instrument of scientific knowledge and management. In today's scene issues are of global nature, that is multidimensional, multi-factor and multi-disciplinary. They need new analytical tools and systems approach. It includes an approach :

- i) based on the necessity to define the desired goals where system is a mechanism for achieving these goals;
- ii) involving application of logical, mathematical, computer and organisational modelling;
- iii) providing for formulation of assessment of alternative ways of achieving the goals;
- iv) based on inter-disciplinary judgement and evaluation of decisions, and
- v) aimed at organic combination, co-ordination and integration of various types activity.

Group dynamics & knowledge worker

Knowledge work is best performed in an autonomous groups. Autonomous work groups are an attempt to structure the social and technical components of work into a jointly optimised system and to provide the unit with the open system properties needed for self regulation. Such groups are more amenable to negotiating and maintaining commitments, managing by objectives and results, encouraging creativity and innovation and practice participate management.

Knowledge usher in R &D

The challenge of productivity of knowledge worker in Research & Development and other technological innovation activities is of different kind. In such activities the problems associated with nature of work—that is fundamental work versus practical work; basic work versus project work, etc. are important. While there has to be a balance between linkage of research work to the needs of the user and scientific freedom that is free run of creative inclination, the needs of the organisation and the satisfaction needs of the knowledge worker has to be considered. The other aspects concerned with knoweldge productivity are guarding against staleness and ageing and to maintain the scientist's prime. These call for systems such as job rotation, training and development of scientists, programmed assignment and progression in the R &D hierarchy. Matching of a scientist's strong inclinations and area of excellence and the content of his job is a vital aspect of knowledge engineering. In this context a scientist's excellence could be typed as creative scientist, entrepreneur scientist, project manager scientist, sponsor scientist and antennial scientist. It appears that for optimum results a scientist's jobs will have to be tailor-made for him to suit his inclinations and traits of excellence.

Changing organisational needs

Another important variable which comes in the way of knowledge optimisation is the process of organisation itself. Most of the knowledge workers contribute to society's welfare and growth as a component of either business, educational or social organisation. Majority of them contribute through business organisations.

How are the business organisations organised throughout the world ? What is the basic instrument of directing and controlling individuals efforts ? There is a high degree of commonality in most of the organisations. Most of them are hiereachically designed. The basic instrument of control and direction used is authority.

Behavioural scientists have revealed through a large number of empirical researches that authority (legal power or authority of position) has become or tending to become an inappropriate means of behavioural direction and control. Firstly, it is so because people on whom authority is used are capable of nullifying its impact. This is happening in case of organised workmen with strong trade unions having support of comprehensive labour legislation. Secondly, authority can be used only in a situation where the persons on whom authority is used are dependant upon the user. In industry we do not have the situation where there is only upward dependence. Dependence is both upward as well as downward. It is also diagonal and horizontal. Industrial environment is basically a situation where we have interdependence. In such situation authority cannot be used fruitfully.

Further, blanket use of authority can be counterproductive, particularly in case of knowledge worker. A knowledge worker can give his best only when he feels like giving his best.

Thus, we find that firstly whatever authority is delegated to an individual cannot be used by him. A big proportion authority remains unutilised. Normally this is seldom perceived. Individuals who cannot use authority normally tend to perceive that they do not have adequate authority. This is happening in case of junior and middle management cadre in Indian industry.

This becomes a case of inappropriate organisational process and it leads to sub-optimum utilisation of human potential particularly among the knowledge workmen.

There is so much blind faith and dependence on authority of power that it is becoming a real complex problem. Researches in management are revealing that this calls for changing the perception of managers and enabling them to depend more and more on other sources of authority like competence, integrity, relationship, image, contribution, etc.

Employee alienation affects productivity and reflects social costs incurred in the work place. Increasingly, manual as well as knowledge workmen, to some extent, even managers tend to dislike their jobs and resent their boses. Workers tend to rebel even against their union leaders. They are becoming less concerned about the quality of the product of their labour and more angered about the quality of context in which they labour. In some cases, alienation is expressed by passive withdrawal, absenteeism, turnover and inattention on the job. In other cases, it is expressed by active attacks—pilferage, sabotage, deliberate waste, assaults and other disruptions of work routine. The acts of sabotage and other forms of protest are over manifestations of the conflict between changing employee attitude and organisational inertia. To a large extent job alienation is becoming a real threat to knowledge optimisation.

Knowledge worker & behavioural assumptions

Whatever method is applied for getting the best possible contribution from a knowledge worker depends on the kind of assumptions we make about the behavioural variables. Now let us look at the management technique and systems used and underlying assumptions behind them. Most of the methods and techniques used are basically geared to "Carrot or Stick" theory. In a way one can say that basically most of the organisations tend to put thrust on control oriented managerial strategies of behavioural direction and control, The underlying assumption behind commonly adopted practice is that most of the people are idle or lazy by nature, external control like threat of punishment or incentive is necessary to make them work. given the proper control people can be driven to do anything and human faculty is unevenly distributed. These set of assumptions are behind most of the practices. How far such strategies have brought results. How far these assumptions are scientific? It goes to the credit of Prof. D. Mcgregor who gave an empirical experimentation to the behavioural assumptions.

Through many subsequent researches and experiences it is proved beyond doubts that for most of the people desire to spend energy on work is as natural as desire to spend energy on rest or sleep. People without work would be as much deprived as people without food and sleep. The worst possible punishment which can be given to a human being is to deprive him of doing any work.

Since there is natural and intrinsic desire to work among human beings, there is no need for any artificial or external means of control either positive or negative. People can be found to be willing to exercise self direction and control for doing the task for which they are committed. Commitment is the function of reward. The best reward which can be given to a human being is ego satisfaction.

Therefore, what is required for knowledge optimisation is the creation of organisational environment and work situation where more and more people find their assignments ego satisfying, develop commitment and contribute their best.

Given proper environment people even demand more and more jobs. Human faculties are evenly distributed. In a normal work environment only a small portion of human potentiality is utilised. More than 75% of human potentiality remains unutilised. This is all supported by empirical facts.

Thus, what is needed is an approach based on positive factual assumptions rather than negative speculative assumptions. This will offer a great opportunity to organisations for knowledge optimisation.

The concept of human capital

There is increasing volume of research in management and applied behavioural sciences showing relationship between certain behavioural variables and the contribution of individuals in the form of productivity. Prof. Rensis Likert calls these variables as 'intervening variables'. He has been able to prove with wide range of empirical data that there is a positive relationship between 'morale' of people and their productivity. Similarly it is proved that positive co-relation exists between 'sense of duty among the employees' and productivity. Sense of belonging to the organisation, sense of security, sense of autonomy, etc. are individually co-related with productivity increase. Likert calls them 'intervening variables'. It is now possible to quantify all these variables. All these behavioural variables quantified and put together constitute 'human capital'. An organisation will have higher productivity in long run only when value of human will go up. One cannot find a situation where value of human capital goes down and productivity goes up.

There are a large number of experiments on the issue as to what promotes the increase in value of human capital. A participative approach with greater thrust on team building, creativity, innovation, involvement is found to be important for increase in the value of human capital. On the other hand control oriented strategy with thrust on procedure, rule, obedience, conformity, centralisation, etc. leads to reduction in the value of human capital.

Managerial unit—measurement of management work

Industrial Engineers have developed quantitative methods of high practical utility for measuring work and determining the time required for doing a job or the number of persons required for a set of jobs. Techniques have also been developed for making such measurements for clerical work involving a combination of mental and physical processes. There is a however, no quantitative measure of supervisory or managerial workload. Managers constitute a very vital group of knowledge workers. Their productivity has a multiplying factor. It is seen that under identical conditions different managers have produced different results. This further complicates measurement of managerial work. The wide diversity of ways in which ostensibly identical jobs are being carried out may mean that managers have far more choice in their jobs than perceived earlier. Industrial Engineers will have to research in this field more intensively to develop what may be termed as 'Managerial Unit' in terms of which to measure managerial work. This will enable determination of the requirement of managers for any given work set up and also managerial efficiency, effectiveness and productivity.

Remunerating knowledge

It is true that in our country knowledge is not being adequately and equitably rewarded. Contribution made by most serving knowledge workers is out of proportion to their contribution. Self employed knowledge workers are much better off. In fact many of the less talented knowledge workers engaged in pursuit of their own are much better off such as traders, some of the lawyers, privately practising doctors, contractors, etc. What does this show? What is this leading to ? Are we being rational in this ? Is it the result of the market forces of demand and supply ? Is it because of any specific government policy ? I think the problem is complicated and has answers in all these questions. The fundamental problem is of knowleage utility and knowledge productivity. Knowledge is available in plenty and the productivity is low and utilisation is minimal. Otherwise the natural socio-economic forces would not reward knowledge on the basis of its utility rather than on its excellence.

To the extent this trend of inducement promotes utility of knowledge, it is desirable and worth accepting. But it will be retrograde and undesirable if this shifts knowledge from pursuit of excellence. Some corrective measures are definitely called for. It will be counter productive if by state influence the remuneration of employed knowledge is kept low and below the livable standards. In fact in some of the internationally exposed organisations the unskilled are being paid as much or more as highly skilled or knowledge in other organisations. I think this phenomena can be best explained by the fact that the cost of acquisition of knowledge in our country is cheap. The substandard status of knowledge is affecting our development. There is no vigour and drive in our knowledge application. This situation must be corrected by adequately rewarding knowledge. The reward-knowledge relationship must give due weightage to all the three acquisition, possession and application. An effective system of knowledge remuneration based on IE principles of financial motivation and equity should be developed.

Conclusion

In conclusion, we have reached a point in human history and its development where the onus for growth has been clearly transferred to knowledge. In such a world the need for certain deliberate, conscious, calculated action to employ knowledge intelligently, creatively and productively is being sharply felt. We cannot leave knowledge to take care of itself in the complex of organisations and systems and power sets. Knowledge needs to be engineered for its most appropriate, productive and rewarding use. Industrial engineers are required to adapt their techniques of improving work, systems and management processes to meet the challenges of knowledge engineering. ☐

Convocation

Science and Engineering

Large scale technological education in the country is a recent phenomenon. Previously there were a few technological institutions and people from all parts of India used to come to study at these centres. It is, therefore, time we consider what should be the special position of the older institutions like their in the technological educational pattern of the country.

In earlier years teaching played a very important part and though there were singular cases of very original Engineers in the country like Sir Visvesvarayya, technical education meant essentially improving on something which had been done in other countries. It has of course been realised in the last 30 years that we cannot wait for developments to take place in Europe first before they are adopted and adapted to this country. In fact the large size of this country and its multifarious techno-engineering problems provide enormous scope for the development of original ideas.

However, in order to achieve this goal, a sound, thorough basic education in Science and Engineering is essential, and it is here that their institution has played such an important role in the country and will continue to do so. I would, therefore, consider that in technological education the prime consideration should be whether teaching is of the type which besides giving the basic training excites people's interest to do entirely new things. I am afraid that while there have been many exceptions, we have not yet reached that stage in our technological teaching. Much effort still goes into examination of tenders and re-engineering and redesigning of equipment.

I would, therefore, like to ask you a question whether it is the inherent weakness of our teaching system or the very inherent weakness of our society itself. I have noticed that in foreign countries by the time a school boy leaves his school, he is already a technician in the primary sense; he knows a lot about workshops, about welding, about electronics etc. This obviously does not happen in our school stages, because here the boys are so busy trying to get the necessary marks to enter medical colleges, engineering colleges, and obtain marks which we used to consider impossible in the old days—like 90% and 100%—that they could obviously have no time for self gadgetting and technical education of any type. A technical background in a family is also a part of this tradition. Now that our agriculture has become an industry, I do not see why a technical approach even from those coming from the mofussil schools too should not come with this background when they enter the Universities. These are a few remarks I would like to make on education at the entry level.

It has been said that India is among the first ten industrialised nations in the world and has one of the highest technical manpower in science and technology. The growth of agriculture has led to the situation where the country has the capacity to feed its 680 million people. We have now to devote concentrated attention on nutrition programme particularly for the rural population. Our industry is progressing very fast but I am sorry to add that we also provide excellent engineers to foreign countries at our own expense and do excellent work abroad. Besides, at the more advanced levels, I feel that people talk of science and engineering as though they are as different as painting is from mathematics. The close inter dependence between science and engineering is still not fully appreciated in the country. In fact in certain countries all scientists and engineers are merely called engineers showing that there is no real difference as to the purpose why they are trained. It is matter of looking at two aspects of the same problem. As I said earlier, India has a large stock of scientific and technical personnel but as a proportion of the total population it does not compare favourably with that in the advanced countries. Further, a large part of the scientific and technical personnel are not really engaged in activities that can be stated to be really scientific or technical. Even more significantly, the quality of this manpower varies widely and there is a need for upgrading a large stock of the personnel by suitable reorientation and training programmes in which technological institutions can play a very valuable role.

The first priority must be to nurture talent by a substantial improvement in the general science and technology facilities in universities and research institutions. The university science system has been allowed to run down through lack of support in the recent past, a trend which, if allowed to continue, may result in an irretrievable situation. The current pressure to which the universities are subjected in terms of the enormous intake of science students needs to be reduced. The ten-plus-two system of higher secondary education has to be effectively brought to use uniformly in all regions, taking note of the opportunities that it provides for filtration at successive levels of 10 to 12 years of school level education. This filtration will only succeed if the alternative channels for vocational training and, later, opportunities for gainful employment are taken care of.

The institutions of higher education with their research facilities are a unique base for the training of competent scientists and technologists. But with the rapid expansion of the number of institutions and students, without the corresponding inputs by way of facilities, the role of universities as advanced centres of teaching and research has been eroded, leading not only to the weakening of science teaching and research but also adversely affecting the climate so essential for higher learning. The need today is, therefore, to restore to the universities their proper image as centres of higher learning. Although it would be unrealistic to expect all the members of the academic community to take up research in addition to teaching, there is an urgent need to revive the concept of integration of teaching and research so that in 10 to 15 years from now, our universities present a different image and are restored to their recognised position.

This new atmosphere has to come about for the developments that have to take place in the next century which is so close to us. I can see during this period many processes and small science computers being used for practically all jobs which are done in a routine way in offices, factories and safety devices will be completely taken over by electronics wherever any hazard exists. It is of course unfortunate that we still use muscle power of human beings in building constructions, and are forced to use in the name of providing employment. Even now something can be done to alleviate human suffering, specially by the civil engineers who do not seem to take any interest in the problem of utilisation of unskilled labour. It often happens that when projects are started in remote places, construction labour is to be imported from outside the State since the locals themselves are not trained for this purpose.

Invariably a project in a remote place is to provide local employment, but as it happens local labour is not in a position to take this kind of activity. A more coordinated and vigorous effort than in the past is needed to equip suitable persons from socially backward groups and weaker sections of the society to play a purposeful role. Consortiums of technological institutions could be formed in each district to provide the needed technical training and back up for the implementation of special programmes for Scheduled Castes and Scheduled Tribes and the weaker sections of the society. The State Councils for Science and Technology could play an important role in arranging for these programmes.

It will be the endeavour of the appropriate major institutions to follow an integrated strategy which will aim at increasing production and productivity in agriculture and allied sectors based on better use of irrigation and improved technology. Programmes in the areas of agriculture, animal husbandry, village and small industries that are of special relevance to the weaker sections of the society will receive special emphasis. In the hill areas, afforestation, soil conservation and watershed management have to be assigned high priority. Alternative land management systems may have to be introduced to make shifting cultivation unnecessary. New technologies based on processing of local raw materials to give high value-added products which will minimize transportation costs and capitalize on the locational advantage of cool climates will also have to be developed.

[*Excerpts from the convocation address delivered by Dr. Raja Ramanna, Director, Bhabha Atomic Research Centre, at the Perarignar Anna University of Technology, Madras.*]

Medical Research

Many centuries ago in this part of India there were several famous Centres of learning known to scholars in many lands. They came here to get valuable new knowledge in several spheres including that of Medical Sciences—the latter had this great city as its centre which has been referred to, by some historians, as the "the great University of Varanasi". From here knowledge relating to Medical Sciences spread to Europe and Arabia and later it grew in the European Universities. Such Universities were established as it became clear that new knowledge could be generated best of all in Universities and new knowledge was invaluable for the progress of mankind. This was not the reason for the establishment of the Universities in India in the 19th century for they did not begin as true centres of learning. However, much later, particularly in the third and fourth decades of the twentieth century, there sprang up several centres of learning in some of our Universities notably in Calcutta. Such centres came to be established in a number of scientific disciplines as well as in the humanities. Unfortunately this did not take place in the medical disciplines in medical colleges which functioned merely as technical institutes for providing doctors for the civil and military needs of the country. The medical colleges were essentially the responsibility of the health departments (later health ministries) of the various States of India with a strong support from the Indian Medical Service—their links with Universities being no more than a formality for providing the degree or diploma scrolls at the convocations. Therefore, only rarely, as in the case of Dr. U. N. Brahmachari who discovered the cure for Kala Azar, was any significant research work done in a medical college and that too in a relatively poorly equipped laboratory.

It is interesting to examine closely the reasons for the significant differences between the development of the Science departments in our Universities and the development of the departments of medical sciences in Medical colleges. To a fair extent, this difference is due to the time of creation and rate of development of specialised research institutions in basic sciences and that of medical sciences respectively. In fact, the University departments were protected for several decades of this century, until the National Laboratories of the C.S.I.R., Research Centres of the Department of Atomic Energy and Defence etc. came gradually into existence particularly from the fifties after the second World War, and it was only from then on that these institutions of research started draining the university departments of talent and claiming the funds for research and development. Once these national laboratories were firmly established, the universities were reduced to the status of merely teaching institution. Thus, it is since the sixties that the development of the science departments of universities has not been what it should have been.

On the other hand, in the case of medical sciences specialised research institutes were established relatively long ago; in fact four institutes, i.e. Haffkine Institute in Bombay, the King Institute, Madras, the Central Research Institute at Kasauli and the Pasteur Institute at Coonoor were already in existence and doing excellent work by 1910. All the research was done here and none in the medical colleges which were established during the British Raj for providing the lower level doctors (assistant surgeons and sub-assistant surgeons) for the civil and military requirements—the higher levels being manned by the personnel of the Indian Medical Service commonly known as the I.M.S. The Personnel of I.M.S. were moved from place to place and serving different departments depending on their confidential reports—the best eventually becoming professors of medicine and surgery, sometimes after a stint in the less popular departments of Anatomy and Physiology. Whether in the army or in the colleges, the power to make decisions lay largely with the physicians and surgeons—a position that remains unchanged to the present day. The clinicians enjoyed this power arising out of their ability to render valuable service and did not bother to do any research as did their counterparts in the medical colleges of Britain. Further, there was no stimulus for carrying out research in medical colleges because of the existence of specialised research institutes for dealing with problems of infectious diseases and malnutrition, manned by highly distinguished men who made remarkable achievements and brought forth practical benefits in the form of sera and vaccines against certain infectious diseases. Thus there was no post-graduate teaching in the medical colleges either. This serious deficiency was felt after independence and corrective steps were taken so that a number of good departments in both clinical and non-clinical subjects were established in some medical colleges. These departments organized courses for the M.D. degree and embarked on research. Soon after, to be precise on September 27, 1957, the Medical Council of India which had till then concerned itself only with undergraduate medical education, resolved to recommend that the Universities should set up Boards of Postgraduate Medical Education and Research to stimulate and organise research. On the 5th of April, 1958 they went one step further and passed the following resolution : "Resolved that information be obtained from each medical college and each University in India regarding the research programmes carried out by the Head and other Assistants of each department of the college and other post-graduate departments and institutions. Each medical college and each University be requested to go into the question of supervision of research work carried out in its department and furnish information annually to the Council". The Medical Council made it known that it would not recognise the M.D. degrees given by Universities if recognised research work was not part of the examination for the degree. These resolutions by the Council greatly strengthened the laboratory facilities of many departments and led to much research activity. Such activity was also greatly aided by the substantial encouragement given by the Indian Council of Medical Research which often held the meetings of their Research Committees at different medical colleges. As a result, by the end of the sixties, one got the impression that more research was being carried out in medical colleges and other post-graduate institutes than in the older research institutes. However, this relatively desirable development in medical sciences has been reversed gradually in the course of ten years. This has happened because of the system of transfers of individuals from one medical college of a State to another so that it is not possible for any one keen to do research to remain in one department for any reasonable length of time. Teachers, being aware that they are likely to be transferred, do not initiate the development of the department in which they are working. By about the mid-sixties this undesirable position plagued almost every State medical college, excluding the centrally administered medical colleges where the services of teachers are not transferable. Unfortunately even this position is no longer prevailing with the introduction of the Central Government Health Service. The centrally administered medical colleges are also covered by the system of inter-institutional transfers. The only exceptions are the three medical colleges run by the University Grants Commission and certain medical colleges run by private agencies and the autonomous medical institutes of Government of India.

So what does the immediate future hold out for us ? One can say that as far as research is concerned, it can be promoted only in the three medical colleges of the U.G.C., the two autonomous teaching and research Institute at Delhi and Chandigarh and a few smaller research Institutes. In these Institutes, research can be promoted by various research organisations such as the I.C.M.R. and the Department of Science & Technology. Specialized Research Centres can be established in these Institutions. What about the other Medical Colleges ? A senior member of the Indian Council of Medical Research said gloomily "The future is bleak, for we cannot establish centres of excellence in

Medical Colleges or even Research Units. We are even finding it hard to sanction research projects in medical colleges". I made a similar point in my Silver Jubilee Research Award Oration in 1979 in connection with the research work I did in 1948-49 in King George's Medical College at Lucknow. I will quote from that lecture: "Would it be possible to carry out such research work in a medical college under the present conditions? My answer to this question is an emphatic "No" in the case of more than 95% of the medical Colleges in India. I was able to do this research because I had the freedom to do what research I wished and I had no fear of being transferred. Today there are about 10,000 potential medical scientists who are rendered incapable of doing any research because they are in constant fear of being transferred. They do not plan for research because of this fear and they take no interest in equipping their departments for research work because they know from their own experience and the experience of others that no sooner have they got the equipment they need, they will be transferred to some other medical college or institution. Why, may one ask, should only medically qualified scientists be singled out for such ill treatment when all their colleagues in other university departments enjoy the security of continued service of their departments."

You will appreciate what I say when you compare the state of research in Biochemistry in the departments of the Universities with the research done in this field in Medical Colleges.... Leave alone research, till the sixties hardly any biochemistry was taught in the biology departments of universities as compared to the significant amount of teaching of biochemistry in medical colleges in the physiology and pathology departments. Thus the medical colleges had a clear lead in biochemistry. But the situation is now the opposite. Today in most universities in India there are reasonably good research facilities in biochemistry and in some departments outstanding research in biochemistry is being carried out. In fact all the major research in biochemistry is being carried out in departments other than in medical colleges which have been left far behind. This achievement has taken place in less than 15 years.

This brings me naturally to the Institute of Medical Sciences of Banaras Hindu University, for here you have what is required and what I hope other medical colleges can emulate. Here any teacher once appointed can look forward to a long period of uninterrupted work. He can, like any other member of a science department, apply for research grants and build up his laboratory. Though such activity he can build up his reputation while advancing knowledge in his subject and thereby become a much more effective teacher. The future of such an individual is assured. Thus the Institute of Medical Sciences of Banaras Hindu University is the example for others to follow and it has therefore given me the greatest pleasure to come here and talk to you today. [*Excerpts from the convocation address delivered by prof. A. S. Paintal, Director, Vallabhbhai Patel, Chest Institute, at the Institute of Medical Sciences, BHU, Varanasi.*]

GAU convocation at Dantiwada

The ninth annual convocation of the Gujarat Agricultural University was held at Sardar Krushinagar (Dantiwada) on February 25, 1982. Dr. Jashbhai S. Patel, former Agriculture Commissioner and ex-Vice-Chancellor, Jawaharlal Krushi Vishwa Vidyapith, Jabalpur, delivered the convocation address, as the Chief guest, and the Vice-Chancellor Shri R.B. Shukla of the Gujarat Agricultural University, presided over.

Addressing the new graduates, faculty members and invitees Dr. Jashbhai said, the poorman's food crops like **Kodaro, bavto, chano** etc. and his animals, sheep and goats needed much more attention of the research workers. He asked the young graduates to take up these crops and animals to their heart and work for their improvement.

Dr. Patel appealed to the young graduates to dedicate themselves to serve as a technical service agents to farmers and farming groups throughout their life.

Delivering the presidential address, the Vice-Chancellor, Shri R.B. Shukla, said the new 20-point programme of the Prime Minister had emphasised agriculture and particularly dry farming. The agricultural university, he said, had been working since long in this direction.

57th Session of AIU

(*Continued from page* 207)

8. This Conference reiterates that teachers and Karmacharis of universities, while free to contest for public office, may do so in terms of the guidelines agreed upon between the AIU and the UGC in this behalf.

9. This Conference recommends that Vice-Chancellors see to it that steps are taken to put an end to what is called student professionalism, by fixing the number of years beyond which students cannot remain on the rolls of one and the same university.

10. The 58th annual conference of the AIU would be held at Kanpur University, Kanpur, while the special general body meeting would take place in May 1982 at the University of Kashmir, Srinagar.

11. Dr. Ramesh Mohan, Director, Central Institute of English & Foreign Languages, Hyderabad, was elected as the next President of the Association."

Campus News

Seminar on basic sciences research

Prof. M.G.K. Menon, Secretary, Department of Science and Technology (Govt. of India) and President, Indian National Science Academy (INSA) said a large net-work of research institution in basic sciences should be created to interact and generate manpower for the frontier areas of science. He said the most important question was what the scientific community was doing and direction in which it should move. This should be analysed by INSA to promote science and help in making a science policy. Prof. G. Ram Reddy, Vice-Chancellor of Osmania University presided.

Prof. Menon inaugurating a three-day seminar on 'Research in Basic Sciences' at Osmania University organised by the INSA, said there was no need to stress the importance of research in basic sciences which provided the solid foundation for applied research. He said new and innovative solutions were needed to basic problems on selective basis. He said when science was narrowed down it produced technicians without perspective.

He said lot of funds were available with various agencies which promoted research. He said between 1975 and 1980 Rs. 10 crores were given by the Department of Science and Technology alone under external funding. He said out of the 850 projects submitted 210 were approved which showed that the research schemes submitted were not of a high quality.

Prof. Menon said infrastructure facilities were available at many places but it should be seen that the costly equipment was fully utilised by sharing. He said unless sophisticated equipments were used by large groups of scientists they would be a waste.

Referring to academic institutions, he said basic science research was a birth right and the organisations should be impressed about its importance.

Prof. Ram Reddy in his presidential remarks said there was a need to have organisations in energy in the state to promote research in science. He said while there were a large number of departments and Councils at the Centre, very few States have such institutes to oversee, evaluate and direct research. He said setting of these would help to coordinate the research activities and to have a total picture of the development of sciences in the State.

Stressing the need for promoting scientific temper in scientific institutions, Prof. Ram Reddy said INSA should influence the policy making organisations based on its findings.

Earlier, Prof. P. N. Tandon, Secretary, INSA, outlined the objectives of the seminar. Prof. V. L. S. Bhimasankarm, Seminar Secretary, reviewed the growth of INSA in the last 35 years.

Tank irrigation systems

To discuss the problems and issues involved in tank irrigation systems and to evolve policy guidelines for modernisation of such irrigation systems a three-day workshop on "Modernisation of Tank rIregation Problems and Issues" was held by the Centre for Water Resources, Perarignar Anna University of Technology in collaboration with the Ford Foundation, the University Grants Commission and the Ministry of Irrigation, Government of India from 10th Feburary to 12th Feburary 1982. The workshop was inaugurated by Mr. M. N. Venkatesan, Chairman, Narmada control Authority, New Delhi. Dr. Roberto Lenton, Programme Officer, Ford Foundation New Delhi also participated in the function.

The objectives of thet he workshop were:

i) To collect and review the date on the present status of tank irrigation in the irrigated agriculture;
ii) To discuss the present scheduling and water management practices;
iii) To study the institutional arrangements and financing of tank irrigation; and
iv) To study the water rates and socio-economic aspects of farmers in tank irrigation.

Delegates from Sri Lanka, Indonesia, USA the World Bank and also from Karnataka and Andhra Pradesh attended the workshop. A highlight of the workshop was a field visit by the delegates to an irrigation tank of a nearby village. The villagers had frank discussions on problems of irrigation with the delegates from the USA, the World Bank and the irrigation department, officials of the State Government, which was thoroughly appreciated by these foreign delegates.

The workshop is an extension of a research project being carried out by the Centre for Water Resources of the University with financial assistance from the Ford Foundation, New Delhi.

Seminar on futurology at PU

Prof. R.C. Paul, Vice-Chancellor, Panjab University, Chandigarh, while inaugurating a two-day Seminar on 'Futurology-Socio-Economic and Scientific Perspective' laid stress on planning for the future. The central theme in Indian planning had to be that of large population which is illiterate and poor. We could draw upon the modern technology and the thought processes coming from the West but we should fully comprehend our problems in the right perspective and find soultions to them in consonance with our own past and present.

Dr. S.C. Seth, Member Secretary of the National Council of Science and Technology (NCST) Panel on Futurology speaking on the concept of Futurology made a strong plea for finding positive solutions to the problems of the future. He said that the future posed a great challenge to the present planners. He laid stress on shaping India in the coming 20 years through scientific research which he said was possible only if the futurists put their heads together. Dr. Seth further said that the greatest challenges which India faced to-day were the challenges of education and unemployment. The future of higher education was greatly dependent on the planning at present. He observed that Futurology is not what mere visions. Mahatama Gandhi was a futurists in the real sense. Dr. Seth observed by 1972, eighty of George Orwell's predictions had already come true.

Prof. H.S. Hans, of the department of physics called Futurology controversial but an exciting subject.

Political science conference at Shivaji University

"It is necessary to cultivate and develop Social Sciences as human sciences to understand and study our present day problems". Principal R.K. Kanbarkar, Vice-Chancellor, Shivaji University, Kolhapur requested the political scientists to undertake socially relevant research. He was inaugurating the Third Maharashtra Political Science Conference at Shivaji University, Kolhapur, recently.

The Conference, held under the auspices of Department of Political Science, Shivaji University, Kolhapur, was attended by 150 delegates from all over Maharashtra.

The Conference was presided by Dr. P.L. Joshi, President of Maharashtra Political Science Conference, and Head, Department of Political Science. Nagpur University. In his Presidential address Dr . P.L. Joshi requested political scientists to study further the neglected field of politics of education. He was of the view that educational institutions exercise great influence over the politics of State.

There was a meaningful and interesting discussion on "Political ideas and movements in Maharashtra", "Government and Politics of Maharashtra" and "Trends, currents and prospects of Indian Politics" in the panel discussion. More than 35 papers were read on these topics and pointedly attention was drawn towards significant aspects of newly emerging political realities in Indian politics in general and Maharashtra politics in particular.

Dr. M. Shakir was elected as President for the year 1982. Dr. K.K. Kavlekar was elected Vice-President and Dr. V. Raipurkar, General Secretary.

Impact of Five Year Plans on North-Eastern region

A three-day seminar on "The Impact of the Five Year Plans on the Socio-Economic Growth of the North Eastern Region" sponsored by the University Grants Commission was recently organised by the Commerce Department of the Gauhati University. The seminar was inaugurated by the Vice-Chancellor of NEHU, Dr. B.D. Sharma and was presided over by Dr. J.M. Choudhury, Vice-Chancellor of Gauhati University. During the first session several speakers including Dr. A.K. Sarma, Dean, Faculty of Commerce, Gauhati University, Dr. P.C. Goswami, Professor, Assam Agricultural University, Mr. K.N. Saikia Hon'ble Justice of the Gauhati High Court and Shri Ajit Sarma MP, spoke on the theme. During the course of the seminar discussions were held on : (i) Infrastructural development and thr role North-Eastern Council; (ii) Industrial development in North-Eastern region; (iii) Agriculture and rural development; and (iv) Growth of commercial and development banking.

As a result of the indepth discussions, the seminar was able to recommend solution covering infrastructural, industrial, agricultural and banking development in the North-Eastern region and the role played by the North-Eastern Council and the Five Year Plans in the development of the region.

IUACE annual meeting

The 16th annual meeting of the Indian University Association for Continuing Education (IUACE) is proposed to be held at the Panjab University, Chandigarh, on March 20 and 21, 1982. A seminar on "Continuing Education : Priorities in Programmes" is also proposed to be organised on this occasion. The following topics have been identified for discussion at the seminar : (i) Programmes for colleges; (ii) Programmes for weaker sections; (iii) Programmes for the organised sector; and (iv) Programmes in appropriate technology and its transfer to the rural areas.

The two-day deliberations are expected to result in the formulation of concrete programmes for the identified target groups and appropriate strategies for implementation. The highlight of the deliberations will be a full-scale discussion on the involvement of colleges in the programmes of adult, continuing and extension education for various target groups.

Vice-Chancellors of universities, principals of colleges, educational administrators and representatives of various research and extension education departments are expected to participate in the deliberations.

Delhi doctor honoured at BHU convocation

The Banaras Hindu University conferred the degree of Doctor of Science (honoris causa) on an eminent medical scientist, Prof. Avtar Singh Paintal, Director, Vallabhbhai Patel Chest Institute, Delhi, at the third convocation of the Institute of Medical Sciences.

Prof. Paintal is a Fellow of the Royal Society of Edinburgh, Fellow of the Indian National Science Academy and of the Royal Society of London.

National symposium at SV varsity

A five-day National Symposium on 'Optical and ESR Spectra of Transition Metal and Rare-Earth Ioins, was held under the Chairmanship of Prof. S. V. J. Lakshman, Professor and Head, Department of Physics, S. V. University, Tirupati from 11th to 15th January, 1982. This Symposium was sponsored jointly by the University Grants Commission and the Department of Science and Technology, New Delhi. About 100 Scientists from all over the Country participated in the Symposium.

Prof. B. Ramachandra Rao, Vice-Chairman of the University Grants Commission inaugurated the Symposium. Prof. R. S. Krishnan, former Vice-Chancellor of Kerala University presided over the inaugural function.

Prof. B. R. Rao said that while some of the older Universities had practically discarded the discipline of Spectroscopy, it was gratifying to note that the younger Universities like Sri Venkateswara University were making big leaps forward in spectroscopic research.

About 10 eminent Scientists prestigious laboratories like Bhabha Atomic Research Centre, Bombay, Indian Institute of Science, Bangalore, Indian Institute of Technology, Madras, Banaras Hindu University, Regional Engineering College, Warrangal, delivered invited lectures on the advances in Spectroscopy. About 50 delegates presented their contributed papers.

The Symposium was a grand success and it helped exchange of knowledge amongst the Scientists who attended it.

International conference held at PAUT

To contribute to technology transfer during the international Drinking Water Supply & Sanitation Decade, the Centre of Environmental Studies of the University conducted the Eighth International conference on "*Water and Waste Engineering in Asia*" in association with Loughborough University of Technology, Loughborough, U. K. from 4th to 6th February 1982. The Conference was co-sponsored by the Ministry of Works and Housing, Government of India, Tamil Nadu Water Supply & Drainage Board, Madras, Metropolitan Water Supply and Sewerage Board, the British Council and the Institution of Engineers (India). 150 delegates participated in the Conference, of which 30 were from countries other than India. The International delegates hailed from USA, UK, Nigeria, Australia, New Zealand and Bangla Desh. Participants from India included senior level executives from the Public Health Engineering Departments, Water Supply and Drainage Boards and Pollution Control Boards of the various States,

The conference provided a forum for exchange of information among the engineers, scientists & others involved in the provision of water to urban and rural communities and in the treatment and disposal of solid and liquid waste.

The conference papers covered the following topics:

Rural Water Supply, Water Sector Training in developing countries, Low Cost Water Treatment, Management of Water Supply Schemes, Rural Latrines, Treatment and Reuse of Waste Water, Low Cost Waste Treatment System, Envirenmental Planning of Bustees, Solid Waste Disposal and Management.

Academy of vedic sciences proposed

It is proposed to establish a Maharshi Academy of Vedic Sciences as a postgraduate recognised institute leading to MA and PhD in Vedic Sciences and devoted to teaching, research and extension of the vedic philosophy in Gujarat.

It is understood the Bhagwat Vidyapeeth, Sola, Gujarat, have placed their 135-acre plot completed with mango groves and tall trees at the disposal of the Vidyapeeth for setting up this academy.

Necessary permission has been sought from the Gujarat University by the authorities.

Seminar on urban fringe at Osmania

Mr. B. Pratap Reddy, Vice-Chancellor of Andhra Pradesh Agricultural University, asked the geographers to undertake a Pragamatic study of the urban and urban fringe problems. He said these problems had assumed gigantic proportions due to various factors like population growth, immigration and pressure on land which led to conversion of agricultural fields to non-agricultural purposes.

Mr. Pratap Reddy was inaugurating a four-day Indo-German Seminar on Urban Fringe organised by the Geography Department of Osmania University. He said the government should allocate more funds to civic bodies to provide basic facilities to the citizens. He said because of haphazard growth many areas were fast turning into slums.

Dr. K. Hottess, Professor of Geography, Ruhr University, Bochum, said even modern planning could not keep pace with the urban problems as can be seen from the Chandigrah experience. He said India would soon be in the industrialised countries list and would face the same problems of the developed countries.

Dr. Hottess said his university was finalising research programmes with Osmania and other universities. He said the research project would cover Hyderabad, Cuddapah and Vizag in Andhra Pradesh and six other towns in India.

Prof. Manzoor Alam, Director of Area Study Programme, Osmania University, said the urban fringe land were zones of transition with special problems—both urban and rural areas—as more and more farm land was being swallowed by the industries with immigrant rural population.

Dr. V. Vidyanath, Director, Indo-German Seminar said the seminar aimed at developing a comprehensive development plan on urban fringe. Dr. Dharmender Prasad, Reader in Geography Department, proposed a vote of thanks.

Career information programme at KU

A week long Career Information Programme was sponsored by the Department of Employment, Haryana Government, at the Kurukshetra University Campus recently. The Universtty Employment Bureau, celebrated the week from February 15 to 19 in the local colleges and the University Teaching Departments. A number of guest speakers drawn from various disciplines gave career talks and more than 400 students from various final year classes were acquainted with the future prospects.

In this programme the emphasis was also to acquaint the students with the guidance facilities available in the bureau, dissemination information on jobs and training facilities available for them and finally to assist them in making judicious choice of their careers in accordance with their achievements, aptitudes, interests and employment market trends. During these days a Career Exhibition was also arranged.

Dr. V. Vatirajan, Head of the Departement of Chemistry, Kurukshetra University and Director of All India Civil Services Pre-Examination Coaching Centre for Scheduled Castes and Scheduled Tribes, KU, presided over the valedictory function.

Training for public health engineers

As part of the activities for the International Drinking Water Supply and Sanitation Decade 1981-1990, a month-long course to train senior management level public health engineers of the South East Asian Countries is being conducted by the Centre for Environmental Studies of the Perarignar Anna University of Technology starting 24th February 1982.

The course on "Project Formulation and Appraisal in Water Supply and Sanitation" is jointly sponsored by the World Health Organisation (WHO), World Bank and the Ministry of Works and Housing, Government of India. The programme aims at developing manpower at senior level needed for achieving the objective of clean water and adequate sanitation for all and is being attended by nearly 30 public health engineers including those from Bangla Desh, Indonesia and Thailand.

New hostel at HAU

The Vice-Chancellor of Haryana Agricultural University, Dr. D. R. Bhumbla, recently laid the foundation stone of an Interns Hostel. The four storeyed hostel will consist of two blocks with 96 rooms. An independent sleeping balcony would be a special feature of the hostel.

The total area of the building is 27207 sq. ft. and the total cost will be about Rs 27.59 lacs. It will take about 1.5 years to complete entire project.

Enrichment course at SNDT

S. N. D. T. College of Education for Women, Pune, a conducted college of the S.N.D.T. Women's University, is organising a U.G.C. sponsored Short Term Institute in Enrichment Course in Psychological Foundations of Education for B. Ed. and M. Ed. lecturers of Maharashtra from 22nd March 1982 to 11th April 1982.

This is the fifth U.G.C. sponsored programme of this college since 1977 summer.

Panjab University to employ retired teachers

The Syndicate of the Panjab University recently decided to remove the bar on re-employment of the University teachers against the existing substantive posts. It has been decided that the University teachers, on the basis of merit, be re-employed, on selective basis after they have attained the age of 60 years against the same post they are holding. A committee would be constituted to frame guidelines for re-employment of the teachers.

A committee would be constituted to look into the question of re-employment of non-teaching staff as well.

The Syndicate further decided to recommend to the Senate that the degree of D.Litt. (Honoris causa) be conferred on Dr. Manmohan Singh, Member-Secretary, Planning Commission, New Delhi and Mr. P.L. Tandon, President, Centre for Applied Economic Research, New Delhi, in recognition of their attainments.

Panjab University recognises IIPA

The Indian Institute of Public Administration has now become an associate of the Panjab University. The participants of the Advance Professional Programme in Public Administration offered by the I.I.P.A., on completion of the course, etc. would be awarded M.Phil. (Social Sciences) degree by the Panjab University. The I.I.P.A. has also been recognised as a centre for doctoral research in Social Sciences in general and Public Administration in particular. There will be an exchange of Academic Staff between the Panjab University and I.I.P.A.

Foundation day celebrations at BHU

A large section of teachers and non-teaching employees assembled at Malviya Bhavan on the 30th January, 1982, and offered a touching floral tribute to the Founder of the University, Mahamana Madan Mohan Malviya. A procession consisting of teachers and non-teaching employees along with the members of their families led by Prof. Iqbal Narain, Vice-Chancellor of the University, went up to the Foundation Stone site where amidst chanting of mantras, a yagna was performed and floral offerings were made on the Foundation stone as it was on this day in 1916 that the foundation of the University was laid.

On this occasion, the Vice-Chancellor released a message recalling the past glory of the University and laying before the present generation a programme for the re-building of the nation.

The Bharat Kala Bhavan of the University, celebrated the Foundation Day by organising a function in the evening in which three catalogues published by it were released by Prof. Iqbal Narain. The function was presided over by Prof. R. N. Saxena, Vice-Chancellor of the Kashi Vidyapith. The three catalogues are :

Bundi : Gita Govind by Dr. (Smt.) Kapila Vatsayan ; Gupta Gold Coins by Dr. Parameshwari Lal Gupta and Dr. (Smt.) Sarojini Srivastava ; and

Textiles : Woolen Fabrics and Costumes—by Dr. (Smt.) Chandramani Singh and Dr. (Smt.) Devaki Ahivasi.

The financial assistance for publication of these catalogues was provided by the Department of Culture, Government of India.

Manipur student wins Sahitya Academy award

Shri R.K. Elangbam, a student of Manipuri Department of Manipur University has won the Sahitya Academy award for his book "Kalenthagi Leipaklei". This is a book of short stories. The student has written eight other books in Manipuri and almost all of his books have the social and political problems of Manipur as their backdrop.

Medals instituted at Manipur

With an aid of generous donations received from the local people, the Manipur University has instituted four gold medals to be awarded to students of the university who secured first position in MA/MSc examinations in the subjects of Physics, Chemistry, Economics and Manipuri. The medals have been instituted in the memory of the relatives of the donors.

Research on soil Entomo-Fauna

The Indian Council of Agricultural Research has sanctioned a sum of Rs 93,600/- for a research scheme to be conducted by Dr. M. Vikram Reddy of Department of Zoology/Entomology, College of Agriculture, North Eastern Hill University at Medziphema, Nagaland. The project is aimed at the study of ecology of soil inhabiting entomo-fauna of three different agro-ecosystems at Medziphema and other places of Nagaland.

News from Agril. Varsities

Konkan Krishi Vidyapeeth releases 'RATNA'

(From our correspondent)

The Konkan Krishi Vidyapeeth, Dapoli, has evolved a new hybrid mango variety "Ratna". It is a cross between a regular bearing 'Neelam' and the leading commercial 'Alphonso' variety of mango.

'Alphonso' is the only commercial variety of mango in the Knokan region accounting for more than 90 percent of the total mango area of 14,200 hectares in this region. 'Alphonso' is noted for its excellent shape, colour flavour, test, texture and keeping quality. Though Alphonso has all these good qualities for commercial marketing, it suffers from serious problems of alternate bearing and development of spongy tissue in ripe fruits. These have adverse effect on its annual out-turn.

In order to overcome these defects in Alphonso, hybridization of this variety with regular bearing south Indian variety 'Neelam' was undertaken since the year 1970 at the Regional Fruit Research Station, Vengurla. Several reciprocal crosses of 'Alphonso' and 'Neelam' were made and a very large number of hybrid seedlings were rigorously evaluted for various characters. Out of them, hybrid No. 13—a cross between 'Neelam' and 'Alphonso' —planted in the year 1971 has shown desirable traits. This hybrid No. 13 has been named as 'Ratna' and released for cultivation during 1981 by the Maharashtra State Variety Release Committee.

Ratna has a combination of the good qualities of Alphonso along with the regular bearing habit of Neelam. It is a moderately vigorous growing tree and has started bearing fruits at the age of four years.

Fruits of Ratna variety are large (average length 10.69 cm. ; breadth 8.36 cm. ; and thickness 6.98 cm.;) weighing 315 grams each. They are greenish orange in colour with prominent oil glands with ovate-oblique and slightly elongated shape. Flesh of the fruit is firm and fibreless. The ripe fruits keep in good condition for about a week. The pulp has good sugar acid-blend with pleasing flavour. No spongy tissue development is observed in this variety.

Two new varieties at HAU

The scientits at HAU have evolved two new varieties.

HG 182 in high yielding, tolerant to drought, becterial blight and *Alternaria* leaf spot diseases. On an average, it yields 19 quintals per hectare of guar seed and gives about 30 per cent more seed yield than recommended varieties. Its seed colour is grey and it is better in gum production.

The oat variety OS 7 is suited for singlecut system and has early vigour. It gives about 530 qintals per hectare of green fodder and 110 quintals per hectare of dry matter and out yielded existing variety HFO 114 by 20 per cent margin. This new oat variety also possesses better nutritional qualities.

Besides these two Varieties *Haryana State Seed Sub-Committee* also released HC 136 of Sorghum, HG 75 of *guar* for seed, HFG 119 of guar for fodder for Haryana State, which were released earlier by Central Varietal Release Committee for general cultivation in whole of the country.

ICAR programme to develop hybrid rice

Under the All-India Coordinated *Rice Improvement Project*, the Indian Council of Agricultural Research has undertaken a programme to develop hybrid rice in the country. The programme follows some spectacular results in hybrid rice obtained in China. Although high-yielding varieties of rice have been developed in India, hybrid rice have not been developed so far. If successful, it is expected that the hybrid rice will boost production and productivity of rice by about 25 to 30% in the next 5 to 6 years. During 1980-81, India's rice production touched all-time high of 56 million tonnes.

Dr. R. Seetharaman, Project Director, recently stated that water management and control of pests and diseases were two major constraints in raising the yield. Water logging and dependence on monsoon continue to play a crucial role in achieving production targets in spite of improvement in irrigation facilities. Only 30% of the total area under cultivation had irrigation facilities at present. Therefore, only by increasing irrigation facilities, he said, it would be possible to achieve quantum jumps in yield levels.

National symposium on cattle health at PAU

Dr. R.M. Acharya, Deputy Director General (Animal Science) in the Indian Council of Agricultural Research (ICAR) said that since the high producing (crossbred) cattle were more susceptible than the indigenous stock to the diseases prevailing in the country, the existing health services for the livestock should be quickly improved to protect the livestock against the deadly infectious diseases.

Dr. Acharya said that though there had been a progressive increase in the number of veterinary hospitals and dispensaries in the country, their number was far below the requirement of the country's livestock population. Moreover, these hospitals were not well equipped with the necessary facilities. Dr. Acharya emphasised that there should be one veterinarian for every ten thousand cattle units by the year 1990 and for every 500 cattle units by the year 2000.

Dr. Acharya was delivering his keynote address at the National Symposium on "Package Practices to ensure efficient health cover for the exotic dairy cattle" at the Punjab Agricultural University recently. The Symposium was sponsored by the ICAR and organised by the Indian Society of Veterinary Medicine and the Department of Veterinary Medicine of the University. More than 100 delegates from all over the country are attending the three-day Symposium.

Presiding over the function Dr. Sukhdev Singh, Vice-Chancellor of the University, said that though India had the highest concentration of livestock population in the world, but its milk yield was very low. It was, therefore, very necessary that cattle improvement programme through cross breeding should be given top priority.

Earlier, Dr. B.S. Pal, Head of the Department of Veterinary Pharmacology, welcomed the Chief Guest and the delegates. Dr. S.K. Misra, President of the Indian Society for Veterinary Medicine, proposed a vote of thanks.

Farm women evince interest in modern home-keeping

More than 6000 farm women drawn from 48 villages of the Jagraon block of Ludhiana district thronged the Campus of the Khalsa College for Women, Sidhwan Khurd, to attend a Farm Women Fair.

The fair was organised by the College of Home Science and the Department of Extension Education of the Punjab Agricultural University to educate the rural women about home-keeping and child care on modern lines, to provide them an incentive for the adoption of improved home practices and to provide them an opportunity for accepting income-generating self-employed activities.

The exhibitions, held by all the five departments of the College of Home Science, included diet for different age group, house-hold, preservation of vegetables and fruits, soaps and detergents, home-made garments, articles for interior decoration, safe storage of foodgrains and mushroom cultivation.

The fair was inaugurated by Mrs Kulwant Kaur, wife of Mr Mohinder Singh, a progressive farmer of Gahaur.

The home scientists gave demonstrations on the working of modern kitchen equipments, hand-knitting machines, making decorative articles from paper and dyeing of wool.

IAS probationers' training at PAU

A group of 24 IAS probationers attended recently a five day training course in agricultural development organised at the Punjab Agricultural University by its Department of Extension Education.

The Vice Chancellor, Dr Sukhdev Singh, told them that the starting of agricultural universities in India in 1960 represented a break with the traditional agriculture and started a new era of increased production.

During this period they were enlightened about the problems of agricultural production and rural development. They were also taken to poultry and dairy farming projects at village Hambran by landless persons.

Foreign soil scientists visit PAU

A group of 28 eminent soil scientists from 15 different countries including the USA, UK, Australia, Germany, France and Switzerland, accompanied by the representatives of the Food and Agriculture Organisation (FAO), visited the Punjab Agricultural University recently. The delegation was led by Dr Clause Flach, of the US Department of Agriculture, Washington, USA.

During their visit the faculty of the department of soils of the PAU showed them around the field experiments on soils, water and fertilizer management. The visiting scientists held prolonged discussions with the University scientists concerning the area of their interest. They also visited the Museum of Water and Power Resources of Northern India and the Soil Museum. The visiting scientists showed keen interest in the experiments on water quality, fertilizer use, dry farming and reclamation of sodic soils.

While welcoming the delegates to a dinner hosted by the PAU, Vice-Chancellor, Dr Sukhdev Singh hoped that such visits of the scientists would promote mutual exchange of expertise on bilateral basis.

German gift for HAU

Mr. Rolf Ramisch, Ambassador of Federal Republic of Germany lauded the Extension efforts of Haryana Agricultural University for its "practical action in grass-root agriculture". Mr. Rolf Ramisch was speaking after formally handing over acculab-2 IR Spectrophotometer to Dr. D.R. Bhumbla, Vice-Chancellor, at a function held in the College of Basic Sciences and Humanities recently.

This equipment, used for identification and characterisation of chemical compounds, was presented to HAU by the West German President Dr. Karl Carstens who visited the Universty in March last year and announced the gift of a "Sophisticated Scientific equipment of my choice".

Mr. Rolf Ramisch also presented to the Vice-Chancellor, a book of biographies of German Indologists. Thanking the diplomat for the gift and the book, Dr. D.R. Bhumbla said that in Agriculture many German Scientists have provided leadership to Indians and have re-discovered our country through German Scholars. The Vice-Chancellor Dr. D.R. Bhumbla presented the Ambassador a packet of '*Ber*' which the German Ambassador had tasted for the first time. Earlier Mr. Rolf Ramisch visited the HAU Research Farm.

Mrs. Bhandarnaike visits HAU

Mrs. Srimao Bhandarnaike, former Prime Minister of Sri Lanka visited the research farm of Haryana Agricultural University recently. While praising the research efforts of HAU scientists she said that many of the techniques developed by HAU scientists could be very well adopted by the farmers in Sri Lanka. Mrs Bhandarnaike visited Dry Land Section where she saw the Gram and Mustard crops. In the Horticulture section she evinced keen interest in the various varieties of *Ber* evolved by HAU scientists. She said that though the *Wild Ber* is grown in her country, some of these varieties could also be tried there. Mrs Bhandarnaike also visited the Animal farm, College of Home Science and College of Vetrinary Sciences.

Later, in the Faculty Club, the Vice-Chancellor, Dr. D. R. Bhumbla, presented her a packet of University literature, a Haryanvi Doll and three packets of different varieties *Ber*.

She was accompanied by Shri Tara Sihgh, Minister for Irrigation and Power and Shri L.D. Kataria, the Commissioner, Agriculture and Development.

FRG Ambassador and VC, HAU, signing documents in respect of the gift given to the university

Hungary keen for joint research projects

Mr Andras Csikos, Scientific Attache in the Information and Cultural Centre of the Hungarian Embassy, in India, was recently on a two-days' visit to the Punjab Agricultural University during which an exhibition of posters and photographs was put up and films on agriculture and rural life of Hungary was screened. A set of publications to the PAU Library were also presented. Mr Csikos said that Hungary was keen to undertake joint research projects with India in agriculture, designing and construction, industry and medicines. In agriculture, he said, joint research would be conducted on wheat, maize, vegetables, herbs and fruits especially the grapes. He further said that junior hydrologists from India could get a six-month advanced training in his country in water resources management under the UNESCO-sponsored training programme.

He said that his country was already assisting India in many projects including a micro-wave link system and the Metro Railway at Calcutta.

Personal

1. **Dr. K.R. Thakare has been appointed Vice-Chancellor of Punjabrao Krishi Vidyapeeth, Akola.**
2. **Prof. A.R. Lakshmanan has been appointed Registrar of Annamalai University.**

Swedish veterinarians visit PAU

A three-member delegation of Swedish Veterinary scientists led by Dr I. Sattergren visited the Punjab Agricultural University. During their stay at the University they went round various departments of the College of Veterinary Science and visited some private dairy farms.

Dr I. Manssou, a member of the delegation, inaugurated the new Gynaecology block of the Department of Veterinary Obstetrics and Gynaecology while Dr I. Sattergren unveiled the portrait of an eminent veterinarian, Late Dr Nils Lagerlof.

The visiting scientists discussed the reproductive disorder problems in the dairy cattle with the PAU veterinarians and addressed the faculty and interns of the college.

News from Abroad

Education in the USSR

The International Institute for Educational Planning has just brought out a supplement to a work it published in 1967 on educational planning in the USSR. It is a study devoted to reforms which have taken place in the 1970s particularly the generalisation of secondary education and the development technical and professional education. The work comprises four chapters, dealing with present public education development planning, the organisation of vocational and technical training, the role of technical secondary education in the specialist training system, and some aspects of Soviet experience in educational development. *(Courtesy* : Unesco News.)

Educational innovations

The Caribbean Network of Educational Innovation for Development (CARNIED) proposes to group all English speaking countries in the sub-region as well as Belize, Cuba, Dominican Republic, Haiti and Suriname. The first sub--regional consultation with all countries wishing to take part in CARNIED is planned for April 1982 with the aim of considering the mode of operation and objectives of the network on the basis of priorities common to the participating States.

CARNIED will serve as a framework for the preparation of an inventory of ongoing and future educational innovations and for exchange of information and technical know-how, the training of personnel and the promotion of inter-country technical cooperation. (*Adapted from UNESCO News*)

IIT Kharagpur Advertisement

(*Continued from page 234*)

of relevant experience in a large Organisation/ Undertakings etc.

Desirable

(1) Experience in Managing Gardens, Maintenance of Lawns and Play Fields, Beautification of the Campus etc.

(2) To supervise and maintain the Institute Nursery.

(3) To supervise the maintenance of Gardens in the Institute including the Guest House, Halls of Residence, Academic departments etc.

Job requirements

(i) To prepare estimates, Design and supervise and able to Organise Horticultural Works.

(ii) To handle Malis and other departmental Staff.

(iii) To maintain Stores.

(iv) Any other work as may be assigned to him by his Superior-in-Charge or the Director.

L. **ASSISTANT ENGINEER (Civil)** Maintenance units— 1 post

(Post is Reserved for Scheduled Tribe candidate)
Post is Temporary but likely to continue.

Scale of Pay : Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/- plus D.A. as admissible.

Qualifications & Experience

Essential

Graduate in Civil Engineering with a minimum experience of 3 years or Diploma holder in Civil Engineering with a minimum experience of 3 years of which at least 5 years experience in Construction, Maintenance and Civil Works of Public Health Engineering.

The qualifications regarding experience is relaxable at the discretion of the Competent Authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes. In at any stage of selection, the Competent Authority is of the opinion that sufficient number of candidates from these communities possessing the requisite experience are not likely to be available to fill up the vacancies reserved for them.

Application forms may be had from the Registrar on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm. Applications accompanied with an application fee (Non-refundable) of **Rs. 7.50** (**Rs. 1.87** for SC/ST candidates) payable by means of Crossed Indian Postal Order to the Indian Institute of Technology, Kharagpur at Kharagpur-721302 Post Office should reach the Registrar, Indian Institute of Technology, Kharagpur by the 10th April, 1982.

Applicants who are in the Employment of Government/Semi-Government Organisation or of any Government undertaking must send their applications through proper channel.

A.K. Sur
REGISTRAR

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Das, Swapan Kumar. Transonic flow. I.I.T., Kharagpur. Prof. P. Niyogi.

2. Das, Tapasi. Fluid dynamics. I.I.T., Kharagpur. Dr. V.U.K. Sastry.

3. Kar, Avijit. Image processing. I.I.T., Kharagpur. Dr. J.P. Agarwal and Prof. S.V.L.N. Rao.

4. Prakash, C. Some aspects of software engineering. I.I..T, Kharagpur. Dr. M.N. Seetaramanath.

5. Visalakshi, Ch. Fluid flow and heat transfer. I.I.T., Kharagpur. Dr. K.S. Sastri.

Physics

1. Chaturvedi, Meena. Nature of electron states in a periodic systems. University of Delhi. Prof. L.S. Kothari, Department of Physics, University of Delhi, Delhi.

2. Jain, Bimal Prasad. Ga as vapour phase expitaxial growth investigations for device applications. Meerut University. Dr. B.L. Sharma.

3 Manam. Jairam. Optoelectronic property studies in some ionic and insulating crystals. I.I.T., Kharagpur. Dr. V.V. Ratnam.

4. Mohanty, Madan Mohan. Non-linear optics and quantum electronics. I.I.T.. Kharagpur. Dr. B.K. Mohanty.

5. Panwar. Vinay Singh. Charge storage and transport mechanism in high polymers. Meerut University.

6. Raghav. J.P Singh. A new lattice mechanical model for ionic lattices. Meerut University.

7. *Subramaniam, Uma. Optical, electrical and magnetic* properties of ionic solids. I.I.T., Kharagpur. Dr. M.L. Mukherjee.

8. Vishnu Gopal. Characterization of semiconductors by plasma reflectivity studies. Meerut University. Dr. A.V.R. Warrier.

Chemistry

1. Acharya, Kanchan. Physico-chemical studies in solvents of high dielectric constants. I.I.T., Kharagpur. Dr. B.G. Chatterjee.

2. Aggarwal, Sadhana. Studies of thermodynamics of molecular interactions in binary and ternary liquid mixtures. Maharshi Dayanand University. Prof. R.K. Nigam, Head, Department of Chemistry, Maharshi Dayanand University, Rohtak.

3. Bagchi, Subrata. Synthesis and physico-chemical studies on polymer systems. I.I.T.. Kharagpur. Dr. M. Biswas and Dr. R.P. Singh.

4. Bandyopadhyay, Debashish. Oxo complexes of molybdenum. I.I.T., Kharagpur. Dr. M C. Chakraborty.

5. Chandra Prakash. Studies on the formation of sucrose in sugarcane in relation to glucose : Sucrose ratio and effect of inorganic nutrients—nitrogen and phosphours on syntheses of sucrose at various stages of plant growth. Kanpur University. Dr. A.P. Gupta, Prof., Department of Chemistry, National Sugar Institute, Kanpur.

6. Gupta, Shashi. Corrosion of stainless steels in mineral acids and its prevention. Kanpur University. Prof. G.N. Pandy, Head, Department of Chemical Engineering, Harcourt Butler Technological Institute, Kanpur.

7. Kar, Gandhi Kumar. Synthesis of lactams and other heterocycles. I.I.T., Kharagpur.

8. Mahapatra, Bimal. Synthetic studies in polycyclic compounds related to natural products. I.I.T., Kharagpur. Dr. D. Nasipuri.

9. Mishra, Subash Chandra. Studies on superplastic behaviour of Ai-Si alloys. I.I.T., Kharagpur. Dr. R.A. Tiwari.

10. Mukherjee, Ratna. Effect of doping on the nature of vanadium catalysts and subsequent catalytic activity. I.I.T., Kharagpur. Dr. S.K. Patil. Dr. B.N. Awasthi.

11. Oommen, Susan K. Coordination compounds. University of Kerala. Dr. C.P. Prabhakaran, Department of Chemistry, University of Kerala, Trivandrum.

12. Raizda, Arun. Studies on mycobacteria with special reference to immunologically active constituents. Kanpur University. Prof. T.A.V. Subramanium, Head, Department of Biochemistry, V.P. Chest Institute, University of Delhi, Delhi.

13. Rath, Nigam Prasad. Studies on transition metal cluster complexes and their magnetic behaviour. I.I.T., Kharagpur. Prof. B. Sahoo.

14. Sahoo, Bhagirathi. Studies on metal complexes with sulphur, nitrogen and oxygen donor ligands I.I.T., Kharagpur. Dr. B. Sahoo.

15. Sannigrahi, Ajoy Kumar. Catalytic vapour phase ammoxidation of organic compound. I.I.T., Kharagpur. Dr A.K. Kar.

16. Sastry, Vempati Veerabhadra Kutumba Reaction under high pressure I.I.T., Kharagpur Dr. K Nandi.

17. Shaji, V.R. Solvolytic studies of aralkyl sulphonates and halides. University of Kerala, Dr. M. Rajasekharan Nair, Department of Chemistry, University of Kerala, Trivandrum.

18. *Wadhwa, Vinita. Effect of long term administration* of centchroman on carbohydrate and metabolism in the genital tract of adult female rhesus. Kanpur University. Dr. V.P. Kambege.

Earth Sciences

1. Das, Subhasish. Geological and biological processes in the beach and seashore environments : A comparative study from the high and low angle coasts of India I.I.T. Kharagpur. Dr. A. Chakrabarti.

2. Pandey, Ratindra Nath. Resistivity. I.P and S.P. methods related to mineral and petroleum exploration. I.I.T., Kharagpur. Dr. K.K Roy.

Engineering & Technology

1. Bendapudi, Seishu, Preparation and characterisation of semi-conductor layers. I.I T., Kharagpur. Dr. D N. Bose.

2. Bhaoyal, Bankim Chandra. Effect of seals on the dynamic performance of turbo-alternator. I.I.T., Kharagpur. Dr. D.K. Rao.

3. *Bhattacharya, Tapas* Kumar. *Power system load estimation* and stability. I.I.T., Kharagpur. Dr. T.K. Basu.

4. Datta, Debasis. Receivers for fibre-optic communication. I.I.T., Kharagpur. Dr. Ranjan Gangopadhyaya.

5. Ghosh, Amalananda. Fracture mechanics. I.I.T., Kharagpur. Dr. B.K. Parida.

6. Ghosh, Prabhat Kumar. Cryogenic engineering. I.I.T., Kharagpur. Dr. S K. Datta Roy.

7. Hameedullah, Mohammed. Cupola combustion. I.I.T., Kharagpur. Dr. B K. Mohanty.

8. Mohanty, Bishupada. Environmental effected physical properties. I.I.T., Kharagpur. Dr. A.K Misra.

BIOLOGICAL SCIENCES

Zoology

1. Bhattacharya, Meenakshi. Isozyme studies in Gryllotalpa. University of Delhi. Prof. S.R.V. Rao, Department of Zoology, University of Delhi, Delhi

2. Hardeep Kaur. Manipulation of orientational and reproductive behaviour of leafhopper, Amrasca deussteue for
of Delhi. Dr. K N. Saxena,
rsity of Delhi, Delhi
Histophysiological studies on
Prof. C.L Talarara, Depart-
Delhi, Delhi.
udies on the ectopic sources of
Prof S. Duraiswami, Depart-
Delhi, Delhi.

5. Mudgal, Laxmikant. Studies on certain endocrine glands of rat before and after vasectomy. University of Indore. Prof. R.S. Shrivastava, Head, Department of Zoology, Holkar Science College, Indore.

6. Saini, Anita Kumari. Accumulation, metabolism and effect of organochlorine on microorganisms. University of Delhi. Dr. D.M. Saxena, Department of Zoology, University of Delhi, Delhi.

7. Sarkar, Sema. Studies in sister chromatidx exchanges and sister chromatid differentiation in Gyrllotalpa. University of Delhi. Prof. S.R.V. Rao, Department of Botany, University of Delhi, Delhi.

8. Sharma, Ashu. Structural studies on inhibin. University of Delhi. Prof. S. Duraiswami, Department of Zoology, University of Delhi, Delhi.

9. Sinha, Rishikesh Kumar. *Study of different approaches for plant water potential for quantification of soil water plant relationship for efficient water use and scheduling irrigation.* I.I.T., Kharagpur. Shri S. Datta and Dr. B.A. Debsis.

Agriculture

1. Balakrishnan, P. Land and water resources management in a command area by goal programming. I.I.T., Kharagpur, Dr. Y.P. Rao and Dr. (Mrs.) M. Majumdar.

2. Brahma Nand. Studies on intercropping of mustard in potato. Meerut University.

3. Ghosh, Rekha. Applied botany. I.I.T., Kharagpur. Dr. D.N. De.

4. Javare Gowda, S. Optimization studies on seed processing industry in selected seed zones of Karnataka State. I.I.T, Kharagpur. Dr. N.G. Bhole.

5. Lakshmana Rao, P.V. Applied botany. I.I.T., Kharagpur. Prof. D.N. De.

6. Mishra, Shyam Narayan. Role of nitrogenous salts in the metabolism of nitrogenous macromolecules in maize leaves. University of Indore. Dr. H.S. Shrivastava, Reader, Department of Life Science, University of Indore, Indore.

7. Mitan Prasad. Studies on the effect of radiation on gladiolai and tuberoses. Meerut University.

8. Pahalwan, Deep Kumar. Water and fertilizer management of leguminous oilseed crops and agro-resource optimization plans for rural development. I.I.T., Kharagpur. Dr. R.S. Tripathi.

9. Pundir, Ajay. Appplication of solar energy to post harvest preservation grain crops. I.I.T., Kharagpur. Dr. S.S. Bal and Dr. R.C. Arora.

10. Ram Phal. Genetical studies on resistance in garden pea to Fusarium wilt. Meerut University.

11. Sahu, Narendra Nath. Water use and management. I.I.T, Kharagpur. Dr. T. Satyanarayana.

12. Sen, Subrata. Optimal management of watershed and command area of Kangsabati reservoir to maximise production. I.I.T., Kharagpur. Dr, K.A. Rao and Dr. (Mrs.) M. Majumdar.

13. Tomar, Virendra Kumar Singh. Water and fertilizer management of maize and mung crops under different evaporative demands and resource constraint conditions. I.I.T., Kharagpur. Dr. R.S. Tripati.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Deshpande, Mukund Amrutrao, Perturbations and applications. Marathwada University.

2. Rajan, A.R. Structure of combinatorial regular semigroups. University of Kerala.

3. Sasmal, Bibhaschandra. A study of some problems of inference associated with probability distributions used in reliability theory. University of Calcutta.

4. Singh, Kameshwar Prasad. Some contributions to groups and topological groups. Magadh University.

Statistics

1. Agarwal, Shashi Bhushan. Contribution to design and analysis of animal experiments. Meerut University.

2. Mukhopadhyay, Rahul. Asymmetric factorial designs and allied problems. University of Calcutta.

3. Rattihalli, Ranganath Narayanacharya. Regions of maximum probability content and their applications. University of Poona.

Physics

1. Bhattacharyya, Dilip Kumar. Electron scattering and transmission through thin films in high voltage electron microscopy. University of Calcutta.

2. Chakrabarti, Asokkumar. On some problems of matter in different phases based on lattice structure. University of Calcutta.

3. Dhawan, Madan Mohan Lal. Study of nuclear particle tracks in solids : Hammer Tracks in nuclear emulsions and trace analysis studies using solid-state nuclear track detectors. Kurukshetra University.

4. Guhathakurta, Sankarnath. Rotating matter distributions in general relativity and some other papers. University of Calcutta.

5. Jayasagar, G. Studies on some mixed fluorite type crystals. Osmania University.

6. Krishan Lal. Trace element study of uranium and boron in agriculture and biochemical prospecting using etch technique and colorimetry. Kurukshetra University

7. Lokhande, Narayan Raghoji. X-ray spectroscopic studies of some alloys. Nagpur University.

8. Nageswara Rao, C. Incoherent scattering of gamma rays by K-shell electrons. Osmania University.

9. Tomy, A.A. Gel growth and characterization of cadmium oxalate trihydrate single crystals. Sardar Patel University.

10. Victor, Putti. Studies on diurnal and seasonal trends in equatorial ionospheric absorption. Andhra University.

Chemistry

1. Akhtar Ali. Studies on condensed heterocycles with potential pharmacological properties. Kanpur University.

2. Basu, Sarmistha. Chemical investigation of plants having antifertility activity. University of Calcutta.

3. Bhoite, Shashikala Abhilash. Recoil reactions of halogens in some oxyanion compounds. University of Poona.

4. Bhuyan, Bipin Chandra. Coordination chemistry studies on the stability of some tervalent lanthanide complexes. Kurukshetra University.

5. Bindal, Rajeshwar Dayal. Studies on antifertility agents. Kurukshetra University.

6. Chakraborti, Akhilranjan. Aspects of ruthenium-oxime and related chemistry. University of Calcutta.

7. Chattopadhyay, Pradip. Studies on heterocyclic compounds. University of Calcutta.

8. Chattopadhyay, Prasanta. Diffusion in solution. University of Calcutta.

9. Chattopadhyay, Tapankumar. Studies on natural products. University of Calcutta.

10. Dasgupta, Jayanti. Studies on glyceride composition of some oils after interesterification. University of Calcutta.

11. Dave, Jayrang Shivprasad. Synthesis of liquid crystals and study of mesomorphism. M.S. University of Baroda.

12. Dubey, Ajay Kumar. Studies on some cyclo-immanium ylides. Kanpur University.

13. Garg, Arjun Kumar. Synthesis and stereochemical investigations of bisbiphenyltin (IV) complexes. Meerut University.

14. Gupta, Ved Prakash. Studies on the interactions of some organic compounds with metal sulphides. Bhopal University.

15. Hirve, Vasant Gopal. The investigations of solute solvent and metal ligand interactions in aqueous and partly aqueous media-coordination chemistry. Marathwada University.

16. Jarullah, Muhammad Shoeb Shamshuddin. Studies on minor constituents in milk and blood of buffaloes and cows under different dietary conditions. Sardar Patel University.

17. Jayaswal, A.K. Chemical studies on cybernetics of protein turn over in mammalian system. Kanpur University.

18. Mohana Rao, Kanithi. Oxazine dyes as indicators and spot test reagents. Andhra University.

19. Mote, Nagnath Apparao. Studies on some metal complexes of thioligands. Shivaji University.

20. Pandey, Banshi Dhar. Studies on coordination compounds of chromium and vanadium. Magadh University.

21. Pati, Nrusingha Charan. Graft copolymerization into some natural macromolecules. Utkal University.

22. Patil, Dilip Govindrao. Fragmentation of homoallylic systems. M.S University of Baroda.

23. Patke, Sureshkumar Bhaskarrao. Studies on trace heavy metals in the environment. M. S. University of Baroda.

24. Pujari, Mahesh Prasad. Kinetics and mechanism of redox reactions of some coordination complexes in solution. University of Calcutta.

25. Ramraj. Chemical examination of triterpene plants and synthesis of azatriterpenes. Osmania University.

26. Ruikar, Sunanda, Ashok. Studies on the reactions of the adducts of copper (II) sulphate with some amines. University of Poona.

27. Sarkhawas, Muhammad Rafique. Radiation induced redox reactions of water and ethanol solution and luminescence effects of irradiated fluorides. University of Poona.

28. Satya Prakasa Rao, Taduri. Kinetics and mechanism of some substitution reactions at chromoium (III) centres. Andhra University.

29. Sen, Asiskumar. Chemical investigation of Garcinia mangestana Linn. University of Calcutta.

30. Shah Prafulchandra Punomchandlas. Physico-chemical properties of polymers : Synthesis and cyanurate of bisphenol-A. Sardar Patel University.

31. Singh, Vinod. The role molecular complexes and metals in the chemical initiation of cancer. Kanpur University.

32. Sinharay, Dilip Kumar. Structural and synthetic studies on heterocyclic compounds. University of Calcutta.

33. Sonawane, Nivrutti Jagannath. Studies on metal complexes of some naphthoquinone derivatives. University of Poona.

34. Soran Singh. Coordination chemistry studies on the metal derivatives of organo-phosphorus compounds. Kurukshetra University.

35. Surya Rao, D. Studies on some transition metal complexes synthesised from physiologically active ligands. Osmania University.

36. Veera Mallaiah, B. Search for oxygen heterocyclics physiological interest. Osmania University.

Earth Sciences

1. Barasl, Mohan Chand. The structure and stratigraphy of the Dharwar rocks of the area South of Chitradurga, Karnataka. University of Calcutta.

2. Patil, Dnyandeo Nana. Geomorphology and tectonics of the west coast of India between Palghar and Thal, Maharashtra. University of Poona.

3. Ray, Debabrata. Stratigraphy and sedimentation of Bagh beds of Lower Narmada Valley, Gujarat. M.S. University of Baroda.

4. Simhachalam, Juttu. Geology and mineralisation of Mamandur polysulphide deposit, South Arcot District, Tamil Nadu, India. Andhra University.

Engineering & Technology

1. Chaudhuri, Dilipkumar. Studies on photo polymerization of methyl methacrylate using some amine-acid combinations as photoinitiators. University of Calcutta.

2. Datta, Gaurmohan. Electrical transport in compound semiconductor. University of Calcutta.

3. Saha, Subhaschandra. Some investigations on the diagnostic for logic networks. University of Calcutta.

4. Yadav, Sridhar Singh. Utilisation of heavier aromatics obtained during the processing of Indian petroleum crudes. Kanpur University.

BIOLOGICAL SCIENCES

Anthropology

1. Pulla Reddy, A. A genetic study of the Yanadis. Sri Venkateswara University.

Microbiology

1. Nadathur, Govind Sundaram. Factors affecting carotenogenesis and morphological changes in Blakes lea trispora. M.S. University of Baroda.

Botany

1. Bandyopadhyay, Santukumar. Studies on the fatty acid-requiring and acetate non-utilising mutants of Aspergillus species. University of Calcutta.

2. Basu, Syamalkumar. Studies on the palms of Indian Botanic Garden, Calcutta and its vicinity. University of Calcutta.

3. Bharat Bhushan. Anatomical and morphological Studies of some fruits and seeds of some economically important crucifers. Kurukshetra University.

4. Bhat, K. Vishnu. Studies on heartwood formation in some angiosperm trees. Sardar Patel University.

5. Biswas, Tapan Kumar. Biochemical studies during germination of seeds. University of Calcutta.

6. Chattopadhyay, Snehamay. Indoleacetic acid and in vitro growth of Nigella sativa L. tissue. University of Calcutta.

7. Chikara, Jitendra. Cytogenetic studies and induced mutations in the genus Setaria beauv. Meerut University.

8. Disa, Suhas Govardhandas. Regulation of nitrate reductase during early germination in wheat embryos. Jawaharlal Nehru University.

9. Ghosh, Abhaykumar. Analysis of structure and behaviour of chromosome in species of Trigonella as an aid in working out their affinity and induction of polyploidy through colchicine treatment. University of Calcutta.

10. Ghosh, Bijay Sankar. Studies on fungal cellulolytic and hemicellulolytic enzymes and their applicational potentiality. University of Calcutta.

11. Goswami, Sunita. Ontogenetic studies of some leguminous plants. Meerut University.

12. Karnik, Sulse Laxminarayana. Systematic anatomy of secondary pholem in Dicots. Sardar Patel University.

13. Kavi Kishore, Polavarapu Bilhan. Some aspects of carbohydrate metabolism in differentiating (tobacco) and non-differentiating (Cotton) tissue culture systems. M.S. University of Baroda.

14. Khare, Dilip Kumar. Ecological effects of fire in tropical dry deciduous forests. University of Saugar.

15. Mathew, Alice Kutty. Studies on growth and diosgenin content of tissues of Trigonella foenum Graecum cultured in vitro. M.S. University of Baroda

16. Mitra, Purabirani. Protein and nucleic acid synthesis in mitochondria from different sources. University of Calcutta.

17. Mukhopadhyay, Ambarish. Effects of certain herbicides on germination, growth and establishment of Ahutilon indicum. University of Calcutta.

18. Palit, Swati. Protein and nucleic acid metabolism in plant mitochondria. University of Calcutta.

19. Phartale, Dattatray Laxman. In vitro studies on Ceratopteris thalictroides, a water fern. University of Poona.

20. Phatak, Varsha Arvind. Pharmacognostic studies on rubiaceae. University of Poona.

21. Sarkar, Surabhi. Allelopathy in two leguminous weeds: Inhibition of seed germination and seedling growth. University of Calcutta.

22. Sathianathan, Karapoondi Nett. Embryology of euphorbiaceae and its taxonomic status. Nagpur University.

23. Sen, Debasis. Studies on the allelochemic properties of the secondary plant constituents. University of Calcutta.

24. Sharma, Chhaya. Studies on hormonal effects on the

seed and pod development of some legumes. Meerut University

25. Siddiqui, Habiba H. Microbial studies of plant parts with special reference to Zeamays Linn. Linn. hay stacks. Osmania University.

26. Singh, Kiran. Physiological studies on symbiolic micro-organisms. Kanpur University.

27. Sumbali, Geeta. Studies on the post harvest fungal diseases of Rosaceccus and Cucurbitaceous fruits in Haryana. Kurukshetra University.

28. Suresh, Charles. Paleopalynological studies of coal bearing beds and megafossil studies of certain lower Gondwana outcrops. Bangalore University.

29. Vasaikar, Sadanand Mangesh. Propagation of economically important plants by tissue and organ culture methods. University of Poona.

Zoology

1. Abdur Razzack. Studies on haemosporozoan parasites of lizard with reference to pathophysiological changes in the host blood. Osmania University.

2. Ajay Kumar. Toxicological studies on the liver and kidney of rat after molybdenum and copper poisoning. Meerut University.

3. Ashok Kumar. Morphology of the conducting (connecting) tissue in the heart of birds and mammals. Kanpur University.

4. Athavale, Neelima Vinayak. Studies on histophysiology of epidermal glands in reptiles. M.S. University of Baroda.

5. Babu. N. Studies on the genus amblypharyngodon bleeker (Pisces-teleostei-cyprinidae) from South India. Universisy of Kerala.

6. Bhakta, Dilip Kumar. Chemocytological study of the avian adrenal medulla. University of Calcutta

7. Bhattacharyya, Santoshkumar. Effect of phenylhydrazine hydrochloride on fish. University of Calcutta.

8. Bhave, Prabhakar Vishvanath. Histomorphology and physiology of the alimentary canal of selected aquatic beetles. University of Poona.

9. Chindurwar, Ashok Balayya Biology of a cyprinid fish, Chela phulo (Ham). Marathwada University.

10. Das, Amritabha. Ecology and biology of Echiurid worm of Sagar Island, Sunderbans, West Bengal. University of Calcutta.

11. Das, Kamalkumar. Biochemical and nutritional studies of air-breathing fishes under different ecological conditions. University of Calcutta.

12. Das, Pradeep. Studies on epidemiology, immunodiagnosis and immunoprophylaxis against amoebiasis. Kanpur University.

13. Dwivedi, Uma Shankar. Nutritional investigation and studies on the role of certain antibiotics in the cockroach, Periplanata americana Linn. Kanpur University.

14. Geevarghese, C. Studies on gobioid fishes of South-West Coast of India. University of Kerala.

15. Girja Shankar. Studies on antifeedllants repellants and insecticidal properties of indigenous plant materials against some insect pests of crusiferous vegetables. Kanpur University.

[illegible] study on the develop- [illegible] as (Coleoptera) under [illegible] University.

[illegible] Studies on anopheles stephensi in Calcutta and its role in transmission of Malaria in man. University of Calcutta.

[illegible] ysiology of reproduction in [illegible] Calcutta.

[illegible] Studies on some trematodes and cestodes of mammals of Andhra Pradesh. Andhra University.

20. Sanjeeva Reddy, Tanguturu. Nutritional deficiencies on rat brain lipids. M.S. University of Baroda.

21. Sanyal, Bratati. Studies on some poisonous fishes of Bengal. University of Calcutta.

22. Sinha, Vinay. Studies on the trematodes parasites of frogs, snakes and tortoises. Kanpur University

23. Siva Prasada Rao, K. Studies on some aspects of metabolic changes with emphasis on carbohydrate utilisation in cell-free systems of the fresh water teleost, Tilapia *mossambica (Peters) subjected to methyl parathion exposure.* Sri Venkateswara University.

24. Srivastava, Subhash Chandra. Studies on aspects of food preference and selection in Bihar being caterpillar, Diacrisia obliqua Walker. Kanpur University.

25. Udaya Bhaskar, S. Monitoring and evaluation of environmental contamination of organophosphorus pesticides by enzymatic methods. Sri Venkateswara University.

26. Venkat Ramaiah Naidu, G. Studies on physiological rhythms in the pedipalpal muscle of the scorpion heterometrus fulvipes with special reference to neural control. Sri Venkateswara University.

Medical Sciences

1. Chakrabarti, Abhyankar. Biochemical studies on human placental tissue. University of Calcutta.

2. Chattopadhyay, Debkumar. Evidence for the existence of a protein in the submaxillary gland as a substrate for biological iodination. University of Calcutta.

3. Mahajan, Raghunath Totaram. Studies on antifertility agents of plant origin. Nagpur University.

4. Majumdar, Anukul Chandra. Physiological studies on the effects of thyroxine in silkworms. University of Calcutta.

5. Sengupta, Nebanita. Biochemical studies on blood of human mental patients. University of Calcutta.

6. Sinha, Krishna. Psychopharmacological studies with oral contraceptives. University of Calcutta.

Agriculture

1. Basuraychaudhuri, Nibhaschandra. Studies on upland rice cultivation in the drought prone areas of West Bengal. University of Calcutta.

2. Das, Sanghamitra. Biochemical basis of conversion of photo-period-sensitive long duration Aman varieties to photoperiod-intensive short duration types. University of Calcutta.

3. Ghosh, Satyahari. Studies on rice breeding with reference to low temperature tolerance. University of Calcutta.

4. Guleria, Warriam Singh. Studies on the effect of plant density, nitrogen fertilization, gibbereilic acid and stage of harvesting on growth, yield and quality of fibre flax in Kangra Valley. H.P Krishi Vishwa Vidyalaya.

5. Hunshal, Chandrashekhar S. Efficient and remunerative inter cropping of sorghum, red gram, green gram and soy-bean with compatible plant population. Haryana Agricultural University.

6. Jagdish Prasad. Farm finance and research productivity in the new seed based technology in Gazipur District (UP). Kanpur University.

7. Mukhopadhyay, Dipak. Studies on the forms and distribution of iron, manganese, zinc and copper in North Bengal soils. University of Calcutta.

8. Pandey, Satendra Nath. An economic analysis of cropping pattern resources use and level of productivity in District Basti (UP). Kanpur University.

9. Prabhakar, A.S. Agronomic investigations on irrigated hybrid cotton. University of Agricultural Sciences.

10. Ram Niwas. Use of pyrites as chemical endment in saline sodic soil. Haryana Agricultural University.

11. Sen, Pradip. Studies on physico-chemical properties of synthetic humic acids and their derivatives. University of Calcutta.

12. Srivastava, Sunil Kumar. An economic evaluation of the scheme for marginal farmers and agricultural labourers (meal) in Ballia District (Eastern U.P.) Kanpur University.

Veterinary Science

1. Desarkar, Mukulkumar. A possible role of sialic acid in female mammalian reproduction in relation to the different ambient temperature. University of Calcutta.

2. Rakesh Chander. Studies on the levels of the primary reproductive hormones in the blood of the she-buffaloes during gestation. Kurukshetra University.

3. Srinivas Reddy, N. Studies on the antimicrobial substance produced by Streptococus lactis subsp. biacetylaetis. Kurukshetra University.

4. Vikram Reddy, M. An assessment of the macrophage hymphoid system in animals bearing tumours of the ethmoturbinate region. Kerala Agricultural University.

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Association of Indian Universities, Delhi. *Question bank book series. Phase II. Pharmacology.* Delhi, Author (c 1981) 393 p.

Astin, Alexander W. *Four critical years : Effects of college on beliefs, attitudes and knowledge.* San Francisco, Jossey-Bass, 1978. xiv, 293 p.

Atal, Yogesh. *Building a nation : Essays on India.* Delhi, Abhinav, 1981. xii, 279 p.

Australian Vice-Chancellors' Committee, Canberra. *Academic staff development : Report of AVCC working party.* Canberra, Author, 1981. xi, 55 p.

Ball, Samuel. *Evaluating educational programs.* Princeton, Educational Testing Service, 1979. 23 p.

Barton, Len and others, ed. *Schooling, ideology and the curriculum.* Buildford, Falmer Press, 1980. 207 p.

Basu, Asoke. *Culture, politics and critical academics.* Delhi, Archana (c 1981) xvii, 106 p.

Blase, Melvin C. *Institution building : A source book.* London, Sage, 1973. x, 325 p.

Bolton, Gavin. *Towards a theory of drama in education.* London, Longman (c 1979) vi, 161 p.

Cohen, Arthur M., ed. *Toward a professional faculty.* London, Sage, 1973. viii, 136 p.

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UNIVERSITY OF ROORKEE

ROORKEE (U.P.)

Advertisement No. EST(A)/2/3/82 **Dated : 3.3.1982**

University of Roorkee, was established in 1949 as a result of reorganisation of the former Thomason College of Civil Engineering founded in 1847. Located near the scenic foothills of the Himalayas, the University has a residential campus of 355 acres, close to Dehradun, Haridwar and Meerut, and 170 Km. north of Delhi. With rich traditions, the academic departments include Architecture & Planning, Civil, Electrical, Mechanical & Industrial, Electronics & Communication, Chemical and Metallurgical Engineering and Pulp & Paper Technology. There are well developed research and training facilities in Earthquake Engineering, Water Resources Engineering and Hydrology. The University also has departments of Mathematics, Physics, Chemistry, Earth Sciences, Computer Science and Humanities. Interdisciplinary Centres have been set up in the areas of Energy, Industrial Management, Biosciences and Environment. Regional Computer Centre with DEC-2050 system is in operation on the Campus. University Service and Instrumentation Centre has been set up as Central facility for sophisticated equipment and instrumentation design. The present strength of enrolment of students in undergraduate classes is 1500 and in postgraduate classes 1000. The number of Ph.D. students is 200.

Applications for the following posts are invited on the prescribed form obtainable from the Registrar, University of Roorkee, Roorkee, U.P. by sending a self addressd 9″ x 4″ envelope affixed with **Rs 1.10** stamps, by **May 5, 1982** (**June 5, 1982** for candidates from abroad).

A. ACADEMIC POSTS

Sl. No.	Department	Professor (Rs. 1500-2500)	Reader (Rs. 1200-1900)	Lecturer (Rs. 700-1600)
1.	Civil Engineering	8 { 4R 1TLR 3T	8R	15 { 5 1TLR 9T
2.	Electrical Engineering	—	—	2 { 1R 1T
3.	Elect. & Comm. Engg.	3R	3 { 1R 1TLR 1T	10 { 4R 3TLR 3T
4.	Chemical Engineering	2T	2 { 1TLR 1T	6R
5.	Industrial Management Centre	1R	—	—
6.	Water Resources Development Training Centre	2 { 1R 1T	1R	—
7.	Architecture & Planning	—	—	7 { 4R 1TLR 2T
8.	Chemistry	—	1T	2 { 1R 1TLR
9.	Earth Sciences	1T	4 { 2TLR 2T	4 { 2R 2T
10.	Mathematics	2 { 1R 1T	—	—
11.	Bio-Sciences	1R		
12.	Physics	—	2R	1TLR
13.	Humanities & Social Sciences	—	2R	1T (French)
14.	Continuing Education	—	1R	—
15.	Hydrology	—	1R	—
16.	(i) Institute of Paper Technology, Saharanpur	1T (Pulp & Paper)	2T (1T Paper/1T Pulp & Recovery)	1T (Pulp)

(ii) Other Teaching Posts at Institute of Paper Technology Saharanpur

- (a) Heads of Departments (Paper, Mechanical Engg.)—1R each. Scale of pay: Rs. 1150-50-1400-EB-50-1700.
- (b) Senior Instructor (Recovery)—1R Scale of pay: Rs. 800-1450.
- (c) Junior Instructor (Electrical)—1R Scale of pay: Rs. 550-1200.

B. ADMINISTRATIVE AND OTHER POSTS

1. Co-ordinator, National Service Scheme	1T (Rs. 1200-1900)
2. Manager Asian African Hostel	1T (Rs. 800-1450)
3. Assistant Engineer (Civil)	2T (Rs. 550-1200)
4. Dental Surgeon	1T (Rs. 500-1000)
5. Research Associate (Earth Sciences)	2T (Fixed pay @ Rs. 1100, 1300 or 1500/-p.m.)
6. Research Technician (Elect. & Comm.)	1T (Rs. 450-850)
7. Asst. Security Officer	1T (Rs. 450-700)

PRESCRIBED QUALIFICATIONS AND EXPERIENCE FOR TEACHING POSTS

QUALIFICATIONS FOR ENGINEERING DEPARTMENT

Professor: Qualifications: Essential : (a) A Doctor's degree and published work of high standard. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level. (c) Experience in guidance of research, preferably at Ph.D. level. (d) 12 years' experience of teaching/research/design and industry in appropriate field with at least 5 years in teaching/research.

Desirable : (a) Teaching experience in an Institution of University level. (b) Specialised industrial experience in the appropriate field.

Reader: Qualifications: Essential: (a) A Doctor's degree OR A Master's degree with published work of high standard (b) *Consistently good academic record with at least I Class Master's or Bachelor's level.* (c) 7 years' experience of teaching/research/design and Industry in appropriate field with at least 2 year's experience in teaching/research.

Desirable : (a) Experience in guidance of research (b) Teaching experience in an Institution of University level (c) Published research work.

Note : A candidate selected for Reader's post who does not hold a Ph.D. must acquire the same within 5 years of his appointment failing which he will cease to draw the annual increment until he acquires the Ph.D. degree.

LECTURER: QUALIFICATIONS

Essential : (a) A Master's degree (b) Consistently good academic record with I Class at Bachelor's degree and/or Master's degree level. (c) One year's relevant professional experience outside academic/research Institutions.

Note : 1. A candidate selected for teacher's post who does not hold a Ph.D. must acquire the same within 7 years of his *appointment failing which he will cease to draw the annual increment until he acquires the Ph.D. degree.*

2. Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of 5 years of his appointment failing which he will not be able to earn furture increments, until he fulfils this requirement.

QUALIFICATIONS FOR SCIENCES, HUMANITIES AND SOCAL SCIENCES DEPARTMENT

Professors : Qualifications

Essential: (a) A Doctor's degree and published work of high standard. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level. (c) Experience in guidance of research preferably at Ph.D. level. (d) 12 years experience of teaching/research.

Desirable : (a) Teaching experience in an Institution of University level.

Readers : Qualifications

Essential: (a) A Doctor's degree (b) Consistently good academic record with at least I Class at Master's or Bachelor's level. (c) 7 Years experience of teaching/research/design and industry in appropriate field with at least 2 years experience in teaching/research.

Desirable : (a) Published research work. (b) Experience in guidance of research (c) Teaching experience in an Institution of University level.

Lecturer : Qualifications

Essential: (a) A Doctor's degree (b) *Consistently* good academic record with at least I Class at Master's or Bachelor's level.

Desirable : (a) Teaching experience in an institution of University level.

Note : If a candidate for Lecturer's post possessing a Doctor's degree of equivalent published work is not available or is not [illegible] weightage being given to M. Phil. or equiva- [illegible] will have to obtain a Ph.D. degree within 7 [illegible] until he fulfils these requirements.

QUALIFICATION FOR ARCHITECTURE DEPARTMENT

Lecturer: Qualifications: Essential :

(a) Bachelor's degree in Architecture plus 2 years of relevant professional experience.

OR

Master's degree in Arch. and One year's relevant professional experience. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level.

Note : Provided further that if a candidate does not possess a Master's degree in Architecture and professional Engineering or a person *possessing such experience is not found suitable, the person appointed will be required to obtain* the Master's degree within a period of 5 years of his appointment failing which he will not be able to earn future increment until he fulfils this requirement.

QUALIFICATIONS FOR OTHER TEACHING POST AT INSTITUTE OF PAPER TECHNOLOGY, SAHARANPUR

1. **Head of the Department (Paper) : Qualifications: Essential** : (a) Atleast high second class, M.Sc. Degree in Chemistry or Applied Chemistry/Bachelor's Degree in Chemical Engg. or Chemical Tech. OR First Class Diploma in Pulp and Paper Technology of atleast two years duration after B.Sc. (with Chemistry, Physics, & Mathematics); OR EQUIVALENT (b) *About 10 years experience in Teaching/Research/Consultancy/Paper Industry, in the field of Paper Technology in* responsible position.
   Desirable : (a) Doctorate Degree in Chemistry/Applied Chemistry/Chemical Technology/Chemical Engineering, allied to the field of Pulp & Paper Technology. (b) Corporate membership of recognised professional Institutions.

2. **Head of Mechanical Engineering Department at Institute of Paper Technology.**
   Qualifications: Essential: (a) Atleast high second class Bachelor's degree in Mechanical Engg. or Equivalent. (b) About ten years experience in [illegible]y, in the field of Mechanical Engg. in responsible position.
   Desirable : (a) Doctora [illegible] tical Experience in **Pulp**, Paper & Allied Industries, in the field of Mechanical [illegible] orate **Membership** of recognised professional institutions.

3. **Senior Instructor (Recovery)**
   Qualifications: Essential : (a) Atleast high second class Bachelor's Degree in Chemical Engg. or Chemical Technology, *or First Class Diploma in* Pulp & Paper Technology of atleast two years duration after B.Sc. (with Chemistry, Physics and Mathematics), or equivalent. (b) Five years experience in Teaching/Research/Consultancy/Paper Industry, in the field of Recovery of Chemicals from spent liquor available from pulp Mill and Unit Operations, in responsible position.
   Desirable: (a) Doctorate degree in Chemical Technology/Chemical Engg., Allied in the field of Recovery of Chemicals from spent liquor available *from* Pulp Mill and or Pulp Technology. (b) Corporate Membership of recognised Professional Institutions.

4. **Junior Instructor (Electrical)**

Qualifications: Essential : (a) At least high second class Bachelor's degree in electrical Engg. or Equivalent.
Desirable : (a) Master's degree in Electrical Engineering. (b) Experience in teaching/Research/Consultancy/Paper Industry, in the field of Electrical Engg.

QUALIFICATIONS FOR OTHER POSTS

1. **Co-ordinator, National Service Scheme**

Qualifications: Essential: (a) A Doctor's degree or A Master's degree with published work in Engg./Science/Social Sciences. (b) Seven years experience of teaching/research design and industry in appropriate field with at least 2 years experience in teaching/research.

Desirable: (a) Experience in guidance of research (b) Teaching experience in an Institution of University level. (c) Published research work.

Note : Candidates should have relevant experience of conducting social service activities/work related with rural development.

2. Manager, Asian African Hostel: Qualifications: [illegible] House keeping and Management, Two to three [illegible] zation of repute.

3. [illegible] Qualification [illegible] vil Engg. with Ist Division. 2 years experience of [illegible] Building Construction.

4. **Dental Surgeon** : **Qualifications: Essential** : B.D.S. from a recognised University with at least 3 years experience of working in a Dental Clinic.

Desirable : M.D.S. degree Registration with U.P. Medical Council.

Note : N.P. Pay/allowance is also admissible.

5. **Research Associate (Earth Sciences): Qualifications**: (a) Doctor's degree in Science/Masters degree in Engineering. (b) Consistently good academic record.

Specialization : Experimental/Computational/Field Technique in : Engineering Geophysics/Engineering Geology/Hydrogeology//Remote Sensing/Geoexploration.

6. **Research Technician (Elect. & Comm.) Qualification & Experience**: B.Sc. OR Three years Diploma in Electronics/Radio Engg./T.V. Technology/Computer Technology. At least 7 years experience of any Electronics Laboratory of University levelel.

7. **Assistant Security Officer**: **Qualifications**: Intermediate.

Experience : (a) At least 5 years experience in Army/BSF/Police or Security Brach of recognised organization/Institution. (b) Retired Army JCOs (not below the rank of Subedar/Sub Majors) Police personnel not below the rank of Inspectors of Medical Category AYE/AYE-ONE (c) Two years experience of working in Security Branch in any Govt./Semi Govt./ Recognised organisation/institution. (d) Personnel having good knowledge of fire fighting and security works are preferred.

Note :
1. Where the number of posts is Two, One is reserved for Scheduled Castes/Scheduled Tribes.
2. Other details required for various posts alongwith specialisation etc. will be supplied alongwith application form.
3. Applicants who are in the employment should send their applications through their employer.
4. R=Regular, TLR=Temporary likely to become regular, T=Temporary.

Dr. O.N. Chaturvedi
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY

KHARAGPUR

Advertisement No. R/2/82

Applications are invited for the undermentioned posts at the Indian Institute of Technology, Kharagpur, West Bengal.

ACADEMIC POSTS

The qualifications, experience etc. required for Professors, Assistant Professors and Lecturer are given below :

I. PROFESSORS

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500/- plus D.A. as admissible.

Age : Preferably below 50 years.

Qualifications & Experience

Essential

(i) A good academic record with a Bachelor's or Master's degree in the appropriate branch and a Doctorate degree.
(ii) Twelve years' experience in the field of specialisation prescribed, of which at least five years' should be in teaching and/or research.
(iii) Published research work of good quality in journals of repute.
(iv) Experience in Guiding research.

Desirable

(i) Experience of Teaching Post-graduate Classes.
(ii) Good design and/or Industrial experience.

N.B. If a person is not found suitable for the post of Professor, he may be offered the post of Associate Professor, in the Grade of Rs. 1500-2000/-

II. ASSISTANT PROFESSORS

Scale of Pay : Rs. 1200-50-1300-60-1900/- plus D.A. as admissible.

Age : Preferably between 30 and 45 years.

Qualifications & Experience

Essential

(i) A good academic record with a Bachelor's or Master's degree in the appropriate branch and a Doctorate degree.
(ii) Seven years' experience in the field of specialisation prescribed of which at least two years' should be in Teaching and/or Research.

Desirable

(i) Published research work of good standard.
(ii) Experience in Guiding Research.

III. LECTURERS

Scale of Pay : Rs. 700-40-1100-50-1600/- plus D.A. as admisable.

Age : Preferably between 28 and 38 years.

Qualifications & Experience

Essential

(i) A good academic record with a Master's degree in the appropriate branch.

(ii) Two years' Professional experlence,

Desirable

A Doctorate Degree.

NOTE : The following are applicable to post of Professors, Assistant Professors and Lecturers :

(A) In all cases experience means experience gained after obtaining the Master's degree.

(B) For posts in Naval Architecture Department and Industrial Management Centre if suitable candidates with prescribed essential qualifications are not available then the minimum educational requirements may be relaxed.

(C) Relaxation of the minimum educational requirements may also be done in the case of candidates having outstanding research achievements or long and Meritorious Industrial Design experience.

Vacancies exist in the following disciplines and in the Cadres noted against each. Applicants must clearly state the Cadre and the Discipline for which they are a candidate.

A. NAVAL ARCHITECTURE

Professors : 2 Posts (Temporary upto September, 1983 and February, 1984, likely to become permanent).

Specialisations

1. Ship Design.
2. Ship Hydromechanics.
3. Ship Motions.
4. Ship Production.

(For Ship Hydromechanics and Ship Motions Candidates with Doctorates and Mathematics and more than ten years' experience of Teaching Naval Architecture may apply).

B. INDUSTRIAL MANAGEMENT CENTRE ASSISTANT PROFESSOR—1 post.

Specialisation in one or more of the following :

Maintenance/Engineering and Management/Industrial Management/Industrial Engineering & Operations Rerearch/Systems Engineering and Management.

C. RUBBER TECHNOLOGY CENTRE ASSISTANT PROFESSOR—1 post.

(a) **Specialisations**

Candidates with degree in Chemical or Mechanical Engineering or equivalent with experience of having worked in the field of rubber technology are required.

LECTURER —1 post

(b) **Specialisations**

Candidates with degree in Mechanical or Chemical Engineering or equivalent with experience of having worked in the field of rubber technology are required.

ADMINISTRATIVE POSTS

D. DEPUTY REGISTRAR : (Sponsored Research and Industrial Consultancy Centre).— 1 post

Scale of Pay : Rs. 1100-50-1600/- plus D.A. as admissible.

Age : Preferably between 35 and 45 years.

Qualifications & Experience

Essential

(i) A high second class Master's degree in Arts, Science, Commerce, Engineering, Technology or Business Administration.

(ii) About 10 years'Administrative Experience in a responsible position in Educational Institution and/or Industries and/or Govt. or Semi-Government Organisation.

(iii) Experience in Handling Ageda, Minutes Procedures of Meetings.

(iv) Experience in Recruitment and Establishment matters.

(v) Experience in Purchase and Stores procedures.

Desirable

(1) Experience of handling sponsored research projects and/or Industrial Consultancy Projects.

(2) Experience in Project Evaluation and Preparation of Project reports.

(3) Should have wide sympathy with the staff and students.

E. DEPUTY REGISTRAR (Academic)—1 post

Scale of Pay : Rs. 1100 50-1600/- plus D.A. as admissible.

Age : Preferably between 35 and 45 years.

Qualifications & Experience

(i) At least a high Second Class Master's Degree in Arts, Science, Commerce, Engineering, Technology or Business Administration.

(ii) About 10 years' experience in academic activities of University standard or equivalent organisation including academic matters connected with students bodies, Senate.

(iii) Must have experience in the conduct of Examinations

(iv) Experience in handling Agenda, Minutes and procedure of meetings.

(v) Capacity to develop corporate life within Residential Institution.

Desirable

Should have wide sympathy with the Staff and Students.

F. DEPUTY REGISTRAR (Administration)—One post (Reserved for SC candidates).

(Post is temporary but likely to be made permanent).

Scale of Pay : Rs. 1100-50-1600/- plus D.A. as admissible.

Age : Preferably between 35 and 45 years.

Qualifications & Experience

(i) At least a high second class Master's Degree in Arts, Science, Commerce or Business Administration.

(ii) About 10 years' administrative experience in a responsible position in residential colleges and institutes.

(iii) Experience in handling Agenda, Minutes and procedure of meeting.

(iv) Conversant of Labour Laws and other Civil Service Rules.

(v) Capacity to develop corporate life within an *educational institute*.

(vi) Experience in Recruitment and Establishment matters.

(vii) Experience in dealing with various service and labour problems including negotiation with Employees' Union and particularly in higher educational administration.

G. ASSISTANT REGISTRAR—1 post

(Reserved for Scheduled Tribe candidate.)

Scale of Pay : Rs. 700-40-900-EB-40-1100-50-1300/- plus D.A. as admissible.

Age : Ordinarily not below 30 years.

Qualifications & Experience

Essential

(1) Good degree in Arts, Science, Commerce or Business Administration.

(2) Must have good knowledge of procedure of General Administration or Accounting of Cash and other Transaction, preferably both, and be able to draft reports and Minutes of Conferences.

(3) At least 10 years' experience in a responsible position under Government or in a Large Educational Institution or Business Organisation of repute.

Desirable

Experience of Supervision of Recruitment work, Meeting and Conference work, Examination work, Students' Welfare work and Proved Capacity to understand Students and their problems.

H. ASSISTANT REGISTRAR (ACCOUNTS)-1 post

Scale of Pay : Rs. 700-40-900-EB-40-1100-50-1300/- plus D.A. as admissible.

Age : Above 30 years.

Qualifications & Experience

Essential

(i) Good degree in Arts, Science, Commerce or Business Management.

(ii) Passed Sub-ordinate Accounts service Examination of Government or the Examination of the Indian Institute of Chartered Accountants or the Indian Institute of Costs and Works Accounts or Equivalent.

(iii) About 5 years' experience in a Government department or in a Business Organisation of repute in :

(A) The Administration of Financial matters such as Budget, Accounts, Rules and regulations relating to expenditure and (B) Cost of Production of articles manufacture in Workshops.

TECHNICAL POSTS

I. ASSISTANT ENGINEER (Cryogenics Engineering Centre)—1 post.

Scale of Pay : Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/- plus D.A. as admissible.

Qualifications & Experience

Essential

(i) A good B.Tech./M.Tech. degree in any branch of Engineering.

(ii) Research/Industrial experience in Refrigeration/Cryogenic Systems.

Job requirement

Expected to take charge of Refrigeration and Cryogenic Plants.

N.B. Essential qualifications relaxable in case of a candidate having more than twelve years' Industrial experience in Cryogenic-Refrigeration Industry.

J. ASSISTANT ENGINEER (ELECTRICAL) (Maintenance Unit)—1 post.

(Reserved for Scheduled Caste candidates)

Scale of Pay : Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/- plus D.A. as admissible.

Age : Not below 25 years.

Qualifications & Experience

Essential

Degree in Electrical Engineering with 3 years' experience or Diploma in Electrical Engineering with 8 years' experience of which at least 5 years' experience should relate to P.W.D., M.E.S., Railways, Electricity Board and IITs.

Job requirements

(1) At least 6 years' experience in P.W.D., M.E.S., Electricity Board or any other Government Undertaking.

(2) Knowledge of Design, preparing of the Electrical estimates of Multi-storeyed Buildings, Sub-stations, H.T. & L.T. Network distribution etc. upto 11 K.V. system and its Supervision.

(3) Preventive maintenance of Electrical Installation.

(4) Knowledge of Inventory control and Contractual work.

K. ASSISTANT ENGINEER (Horticulture)-1 post

Scale of Pay : Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200/- plus D.A. as admissible.

Qualifications and Experience

Essential

A graduate in Agricultural Engineering with a minimum of 3 years' of relevant experience or a Diploma (Three Years' Diploma) in Agricultural Engineering with seven years'

(*Continued on page 224*)

INDIAN INSTITUTE OF TECHNOLOGY

HAUZ KHAS : NEW DELHI-16

Advertisement No. 2/82

Applications are invited for the following posts under the Department/Centre/Cell and in areas/specialisations as indicated against each :–

Department of Applied Mechanics: Assistant Professor/Lecturer: Solid Mechanics, Fluid Mechanics, Design and Systems Engineering.

Department of Civil Engineering : Assistant Professor. Lecturer : Structural Engineering, Soil and Rock Mechanics, Water Resources Engineering, Transport Engineering, Surveying, Material Science.

Department of Electrical Engineering: (Automation Systems Engineering and Policy). **Lecturer/SSO II** : Transportation and Energy System Planning and Policy Studies, Multi machine Power System Modelling and Control, Micro processor based control systems, Pattern Recognition and Adaptive Control.

Department of Humanities & Social Sciences : Professor : Sociology, Political Science and English as a foreign language. **Assistant Professor:** English as a foreign language.

Department of Mechanical Engineering: Assistant Professor Lecturer: Design Engineering, Production & Industrial Engineering, Thermal Engineering

Department of Mathematics: Professor: Applied Mathematics, Pure Mathematics, Numerical Analysis Computer Science, Statistics/Operation Research. **Assistant Professor:** Ph.D. in Mathematics with teaching experience in Computer Science. **Lecturer:** Applied Mathematics/Pure Mathematics/Numerical Analysis/Computer Science/Statistics/Operations Research

Department of Physics: Professor, Assistant Professor, Lecturer: Solid State Physics, Applied Optics and Plasma Physics.

Department of Physics (Plasma Science & Technology Cell) Professor: Plasma Physics. Desirable- Specialization in Wave Plasma interactions with applications to fusion space and solid Plate Plasma.

Department of Physics (Laser Applications Programme): **SSO SSO II:** Optics/Opto Electronics. Desirable: Research in Waveguides.

Department of Physics (Optical Communication Engineering Programme): **Professor Associate Professor & Assistant Professor** : Optical Communication.

Department of Physics : (Thin Film Solid State Technology Cell) : **Lecturer/ SSO II** ; Ph.D. in Experimental Solid State Physics/ Electronic Material/ Surface Science. Experience in Thin Film Science and Technology and Sophisticated Electronics Instrumentation.

Computer Centre : Assistant Professor : Programming Languages, Operating Systems, Computer Arithmatic, Graph Theory, Management Information Systems, Data Base Technology, System simulation Computability Switching and automata theory.

Centre for Energy Studies : Professor, SSO II : Ph.D./M. Tech. in Physics/Mechanical/Electrical/Chemical Engineering with experience in one of the areas as Electrical Energy System, Liquid Fuels and Feedstocks from Low grade coals, Unconventional Synthetic Fuels Utilisation, Solar Energy Utilisation (Thermal and Photovoltaic application Laser Induced Fusion, MHD Power Generation. In case suitable candidates are not available for Professor's post, candidate can be considered for Assistant Professor/Lecturer.

Central for Material Science & Technology : Lecturer : Building Materials, **Research Associate** : Polymer Science & Technology.

Centre for Systems and Management Studies : Professor/Chief Scientific Officer : Management, Outstanding teacher/expert in the subject of Management, established reputation in organisation of high level courses, significant contribution to knowledge. Contribution to the development and implementation of industry based courses particularly for the public sector executives (technical). **Assistant Professor**: Managerial Economics. **Senior Scientific Officer II**: Management/Public Administration/Social Sciences.

Instruments Design Development Centre: Professor/Chief Design Engineer: Mechanical/Optical/Electronic design, Development and Production. **Reprographic Officer**: (1100-1600): Degree in Electronics or Mechanical or Master's degree in Physics. Minimum 5 years' experience in the field.

Industrial Tribology Machine Dynamics and Maintenance Engineering Centre : Professor/Chief Design Engineer : Wear, Boundary lubrication and failure analysis, maintenance engineering, design audit and condition monitoring. Some experience of research and development in the field and liasoning is absolutely essential. **Assistant Professor/Senior Design Engineer. Lecturer/Design Engineer**: Diagnostics and Signature analysis, boundary lubrication, wear failure, repair technology, life cycle costing, computer aided design in maintenance engineering, design audit, tribe systems, lubrication analysis using modern chemical instruments, data processing and computer, weight consideration in design. Some experience of research and development in field in industry and liaisoning is necessary.

Offshore Structures Research Cell: Lecturer: Structural Engineering-Stress analysis with professional experience in the field of Offshore Structures. **Senior Design Engineer**: Experience in Research, Design and/or Development work in Structural Engineering/Stress analysis.

Library : Deputy Librarian (Reserved for SC/ST) Rs. 1100-1600; Ist or 2nd class M.A. M.Sc./M.Com. plus Ist or 2nd class **B.Lib.** Science or Diploma in Lib. Science (M. Lib. preferred) 7 years experience in Library in a responsible position. If suitable SC/ST candidates not available post will be treated as dereserved and filled from general category candidate.

Pay Scales & Minimum Qualifications

Qualifications should be in or related disciplines/fields.

(A) Engineering & Technology : Professor/Chief Scientific Officer : (1500-2500/2000-2500): An eminent scholar, Ten years' experience including guiding research at doctoral level OR an outstanding Engineer Technologist with established reputation and significant contribution to knowledge. **Assistant Professor** : (1200-1900): Good academic record with Ph.D./equivalent Research published work or design development work of high order. 5 years' experience OR Good academic record with recognised work in industry/professional field. Lecturer (700-1600): Good academic record with Master's degree in the field. One year relevant professional experience outside academic research institution. Experience relaxable conditionally.

(B) Science & Humanities: Professor/Associate Professor: (1500-2500/-1500-2000): Good Master's degree/Doctorate degree or equivalent published work. 7-10 years experience in teaching, research and industry in or related field. **Assistant Professor/Lecturer** : (1200-1900/700-1600): Good Master's degree/Doctorate degree or equivalent published work, 5/2 years' teaching/research and industry experience in the field. **Common for Engg. & Technology and Science & Humanities**: Chief Design Engineer (1500-2000) Good Engg. degree with 10 years experience or Good Master's degree with 12 years experience in design/development, research and production. **Senior Design Engineer/Senior Scientific Officer I**: (1100-1600) Good degree in Engg. or Master's degree in the field with 5 years experience. **Design Engineer/Senior Scientific Officer II**: (700-1300): Good degree in Engg./M.Sc. in the field with 2 years relevant experience. **Research Associate** : (Consolidated 1000/- to 1400/-): Ph.D. Experience desirable.

General: Allowances at Central Government rates. Candidates called for interview are entitled to 2nd class rail fare. Reservation for Scheduled Castes/Tribes candidates, as per Government of India rules except for Professor, Associate Professor and Assistant Professor and Scientific Posts. I.P.O. for **Rs. 7.50 - (Rs. 1.87** for SC/ST candidates) 10 copies of list of publications must accompany the application.

Application forms and detailed information regarding qualifications and experience can be had from Deputy Registrar (Estt-I) by sending self addressed stamped (90 paise) envelope. Last date of receipt of completed application forms is **29th March, 1982 (10th April, 1982 for candidates abroad)**.

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR
Advertisement No. 9/82

Applications are invited for the post of Coordinator (Trg.) in the scale of Rs 1100-1600 plus allowances as may be admissible from time to time for the Training & Orientation Centre of the National Service Scheme of the Institute :

Qualifications & Experience

1. Engineering/Science graduate with a degree in social work.
2. Field experience in rural development.
3. Experience in organising seminars, training programmes etc.

Age : Preferably below 35 years.

Responsibilities

To run training and orientation centre and to participate in the NSS Programme of this Institute. Besides organising orientation courses and refresher courses, Training and Orientation Centre is expected to perform the following functions :

(i) Assisting the Universities in the planning and conducting of University level pre-camp orientation courses for special camping programme.

(ii) Developing and providing consultancy services to the Universities and Colleges in the areas of programme planning, training, supervision, evaluation etc.

(iii) Research and evaluation studies of specific NSS Programmes.

(iv) Acting as clearing house of information on NSS through preparation, publication and circulation of literature on various aspects of the programme.

(v) Providing on the spot guidance to the Universities and Colleges in Camps etc. through personal visits

The post is purely temporary and appointment will initially be made for two years. Selected person is expected to join immediately.

Applications giving name, address, date of birth, qualifications and experience, should reach the Registrar, Indian Institute of Technology, Kanpur-208016 **on or before April 15, 1982.**

OSMANIA UNIVERSITY
HYDERABAD 500007 (A.P.)
Advertisement No 2/82
4th March, 1982

Applications, in the prescribed form, together with the registration fee of Rs. 5/- through M.O./I.P.O./Challan 'A' are invited for the following posts in the University Service so as to reach the undersigned on or before **22nd March 1982 :**

1. Professor in Theatre Arts
   Rs. 1500-2500
2. Lecturer in Theatre Arts
   Rs. 700-1600
3. Stage-in-Charge
   Rs. 450-700
4. Sr. Research Associate (Astronomy Department)
   Rs. 900-1450

AGE : Professor : Not above (50) years.
Lecturer : Not above (35) years
Stage-in-Charge : Not above(30) years
Sr. Research Asst : Not above (40) years.

Application forms can be had from the Director, Dept. of Publications and University Press, Osmania University, Hyderabad-500 007, A.P. on payment of **Rs. 4.50** in person or by money order or by a postal order UNCROSSED made payable to the Director, and by sending a self-addressed envelope (11¼ x 26¼ cms.) duly stamped for ordinary or registered post.

Full particulars can be obtained on requisition from the Director, Osmania University Press, free of cost, by sending a self-addressed stamped envelope.

B. Ramachandra Reddy
REGISTRAR

SHIVAJI UNIVERSITY, KOLHAPUR
Advertisement No. 9

Applications are invited for the following posts :

PROFESSOR : One each in Chemistry (Sugar Chemistry), Politics (Regional Political Thought & Movements), Sociology (Rural Sociology).

LECTURER : One each in Chemistry (Polymer Chemistry), History, Two each in Sociology, English (Aesthetics, Commonwealth Literature, Comparative Literature & American Literature), Mathematics (One in each category) : Must have specialised in one or more of the following fields : Category (a) : (i) Elasticity, (ii) Fluid Mechanics, (iii) Mathematics of Operations Research, Category (b) : (i) Topology, (ii) Differential Equations, (iii) Numerical Analysis & Computer Science.

PAY SCALE :

(i) Professor : Rs. 1500-60-1800-100-2000-125/2-2500

(ii) Lecturer : Rs. 700-40-1100-50-1600

Qualifications

Professor : An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at Doctoral level. OR An outstanding scholar with established reputation who has made significant contribution to knowledge.

Lecturer : (A) Doctor's Degree or published work of an equally high standard: AND (B) Consistently good academic record with first or higher second class (B+) at Master's Degree or equivalent Degree of a Foreign University.

Age Limit : Candidates applying for the posts of Professor should ordinarily be below the age of 50 years, those applying for the Posts of Lecturer should ordinarily be below the age of 35 years. However, this age limit may be relaxed in the cases of deserving candidates.

The posts of Lecturer in the following subjects have been reserved for the candidates belonging to the Backward classes. Mathematics : One Lecturer, English : One Lecturer and Sociology : One Lectrurer.

Full details of this advertisement will be supplied on request with the application form.

Prescribed application forms (seven copies) can be had from the University Office. Desirous candidates are requested to send Indian Postal Order of **Rs. 3.50** alongwith a self addressed envelope (Size 28 cm. x 12 cm.) with a postage worth **Rs. 1.40 paise.**

Seven copies of applications alongwith necessary enclosures attached to each copy of the application should reach the Registrar, Shivaji University, Vidyanagar, Kolhapur-416004, on or before **10th April 1982.**

R. V. Chavan
REGISTRAR

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH APRIL 1, 1982

Dr. N.E. Borlaug (second from right), alongwith other wheat scientists, in the wheat field of HAU research farm.

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UNIVERSITY
NEWS

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IN THIS ISSUE

Semester System and Library Use 241
Functions of a Coach 243
A Report on an Asian Regional Seminar 244
Heart Trouble and Physical Activity 246

Convocation

Education Structure 247

Campus News

Faculty Improvement programme 248
Correspondence Courses at Madras university 248
National workshop on item banking for MBA admission test 249
Seminar on Botany at Patna 250
GUTA seminar 251

Agriculture

PAU releases new varieties of groundnut, soyabean & rice 251
RAU develops new variety of maize 252
Prof. Ramesh Mohan takes over as President of AIU 253
Research in Progress 254
Theses of the Month 255
Current Documentation in Education 258
Classified Advertisements 260

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

Calcutta proposes changes in honours courses

The Calcutta University introduced in 1978 the two-year Pass Course and the three-year Honours Course at the degree level replacing the old three-year degree course system. According to the new pattern a pass course student appears at the final examination at the end of two years of study and an Honours course student appears at 4 Honours papers and 6 pass papers at the end of second year of study (Part I Honours) and the remaining 4 papers of the Honours course at the end of the 3rd year (part II Honours).

Those who take up Pass Course face no problem if they do not want to pursue further course of study at the post-graduate level. Since very few mofussil colleges have arrangements for Honours teaching, many meritorious students living in mofussil areas cannot take up Honours courses unless their financial conditions permit them to come to Calcutta or its neighbourhood where the colleges usually have affiliation in such courses. These students and also those who pass in the Pass course but wish to prosecute further studies at the post-graduate level have real problem in doing so because in that case they will have to read again for one or more years and appear at regular Part I and Part II Honours examinations in the subject of his choice. Thus they lose a number of years of their precious time. The present system in a sense is blocking the doors of higher P.G. education to quite a large number of desiring students, especially those residing in rural areas.

The Honours student generally give or can afford to give very little attention to their Pass subjects during the first two years. As a result, they sometimes fail or get barely pass marks in the pass subjects even when they secure good marks in their Honours papers. This is academically unsound as it leads to premature overspecialisation. It is also likely to be disadvantageous for those who wish to continue for research work in to-day's inter disciplinary world of knowledge. It is also against the prevailing all-India norms.

It is also not uncommon that an otherwise good student fails to correctly assess his capability or inclination just after finishing his+2 stage and makes a wrong choice of his Honours subject. This may turn out to be a fatal mistake for his future academic life.

In order that the Honours students may pay due attention to their pass subjects as well and those students who could not or did not take up Honours course at initial stage may have the equal opportunity of reading Honours course without losing a year or more, the present pattern of study and examination in Honours courses is proposed to be changed.

It is now proposed that every student will at first have to study three pass subjects for two years. After successfully completing the pass course, he will have the option to join the Honours course of studies in a subject of his choice provided he gets some minimum marks. He will have to study for another year and appear at the Honours examination at the end of that year. This one year Honours examination shall comprise 5 papers including practical in case of science subjects, and if a student is sucessful at this examination he will be declared to have passed in the Honours course. If the above scheme is accepted, all the students will give adequate attention to the 3 Pass subjects in the first two years, thereby receiving a thorough and broad-based training in each of these subjects, and then concentrate on their Honours subjects in the third year. There will be no unhealthy and elitist stratification among the Pass course and Honours course students or teachers.

Details of proposed modifications

B.A./BSc./B.Com. (Pass) will be a 2-year course having 3 subjects or groups of subjects.

Each Pass subjects or group of subjects will have 3 papers of 100 marks each. In the case of Science subjects (Laboratory based) except Mathematics, there will be two Theoretical and 1 Practical Paper. Music will have 1 Theoretical and 2 Practical Papers.

There will be one Cumpulsory Addl. Language in English/Bengali/Urdu/Hindi/Nepali of 100 marks for all streams.

Candidates taking up B.A./B.Sc./B.Com. Pass Course will have the option to choose any three subjects/groups of subjects in each stream or any two subjects in a stream and any one from another stream, provided that B.A./B.Sc. candidates may take Compulsory Gr.I or Elective Gr.IIIA only (and not Comp. Gr.II or any other Elective Gr.) from the B.Com. stream, as shown in Section (*a*) below.

A candidate passing in the Pass Course with 50% or above marks in a subject/Elective Group of subjects will be admitted to the Honours Course in the corresponding subject/Elective Group of subjects in the third Year. The syllabus of the Honours Course shall be designed to give intensive training in as many selected areas of the subject as possible, so as to serve as an introduction to the Post Graduate Course instead of a terminal course as at present. No time bar or number of chance is prescribed for appearing at the Honours examination—but no candidate except a Teacher candidate will be allowed to appear at the Honours examination without attending classes at least for one academic session in every third year, in case he fails in the first attempt.

Each Honours subject/groups of subjects will comprise 5 papers of 100 marks each. In the case of a Science subject (Laboratory based) except Mathematics, there will be 300 marks for Theoretical and 200 marks for Practical, as per the respective syllabus.

There will be no Special Honours, no Compartmental in Honours, no qualifying marks for Part I Honours or Part I/II examinations for Honours candidates as under the present New Regulations.

For B.Com. Course, the following Groups will be available :

Comp. Group I : Business Organisation/Accountancy (will also correspond to Group IIID); Secretarial Practice ; Commercial Law ; **Comp. Group II** : Resource Studies ; Economics/Accty (will also correspond to Group IIIB); Bus, Math. & Stat; **Pass Elective Group III A**: Accountancy; Adv. Accountancy; Auditing ; **Pass Elective Group IIIB** : Economics ; Money & Banking ; Law of Banking ; **Pass Elective Group IIIC** : Accountancy ; Costing ; Income Tax ; **Pass Elective Group IIID** : Business Organisation ; Company Management ; Company Law.

(*b*) Corresponding Honours Group to the Pass Elective Group III—5 papers.

(*i*) Group IIIA or C: Accountancy (3) + (*i*) Costing and Taxation (*ii*) Bus. Stat. or Bus. Math. Group IIIB: Finance (3) +(*i*) Advance Economics (*ii*) Economic Problem of India. Group IIID: Management (3) + (*i*) Costing and Taxation (*ii*) Bus, Stat. or Bus. Math.

Sections (*a*) and (*b*) above are to be finalised in consultation with the Commerce Sub-Committee.

The examination at the end of 2nd year shall be held in the first week of May and the result shall be published by the end of June, so that the third year Honours classes may start from the first week of July.

Semester System and Library Use

K. Lazarus*

The University Grants Commission, after considerable thought based on the recommendations of various Commissions and Committees, recommended introduction of the semester system and many Universities in India adopted this system. The academic year was divided into two semesters. Certain course work, as detailed by the syllabuses, for each semester had to be completed. Continuous evaluation in the form of internal assessment had to be made and at the end of each semester, a final examination was to be held. The courses of studies, examinations, evaluation of students work at examination as well as at sessional work were organised semesterwise.

The main objective of education is not only to impart knowledge in the students but also to develop in them skills, power of mind, achievements in subject and his personality traits. These are to be achieved through teaching and other academic, curricular and library programmes. The methods more fluently used under this system to evaluate the students' progress are 1. Lecture method; 2. Seminars, tutorials and class-room discussions; 3. Written assignments; 4. Class tests—weekly and monthly: 5. Essay type; 6. Questions and answer method; 7. Mid-Semester, Final Examinations; and 8. Viva Voce.

Organisation of course work

The teachers provide to each student a programme sheet of coursework for each subject of their study in which they are assigned certain topics at the beginning of each semester. This involves writing a project report of dissertation or preparing a paper for discussion and taking part in Seminar discussion. These methods are adopted for teaching and assessment of student work. Students are instructed to submit a project report containing certain number of words specified, length of the project and due date for submission with paragraphical headings, giving foot-notes, style of citation followed by a bibliography. Individual tutorials are essentially required and project paper is a cooperative endeavour. Guidance is given in form of books, articles in periodical literature, textbooks, monographs, reference books for background, optional and supplementary readings.

Impact of these methods on students and staff

This system forces the students and staff to be very busy in organising the study programme systematically. The students are to work under guidance of a tutor, a lecturer or the Heads of Departments for about 20 to 25 hours a week. The students have to study extensively and intensively a number of books, textbooks, reference books, articles in journals and report literature requiring them to remain in library for long hours. This forces them to be trained in arrangements of thoughts and analysis, planned self-directed study and continuous work. Their progress is under constant and continuous review by teachers. As such this also compels not only students but also lecturers to consult more books published currently to keep themselves up-to-date in their relevant disciplines. Hence in this process of teaching, learning, evaluation or assessment, library facilities and services form integral parts of education of the students in the University.

Impact on library

What is the role of the library in the wake of introduction of semester system in the University? It is necessary for the library as a service institution to organise and administer men, materials and services in such a way, so that the library can be used effectively and efficiently by the students and teachers. So the primary function, among other functions, is (1) to provide material for students' course work, for assigned readings as well as reference and background reading, for essays and projects or dissertation or term paper; (2) to select, acquire and organise material for course related work; (3) to make them available to users; (4) to provide reference and bibliographical information; and (5) to provide facilities for studying course related material.

UGC has been providing financial assistance to establish book banks in colleges and universities. It provides some basic grants for the purchase of books including textbooks.

Acquisition policy

Firstly, the instructors or lecturers should send programme sheet in which the topics and list of books recommended for required and supplementary reading are included and send to the Librarian every year well in advance of the commencement of the I Semester. Secondly, separate indents for multiple copies of books needed for course work should be sent to the Library at the commencement of the financial year i.e. April every year. Librarian should possess all the syllabuses of the courses of all the Departments in the University.

Teaching staff and library staff should work together closely to discard obsolete textbooks and reference books, and to determine the titles and the number of copies to be purchased.

The procedure provides to the Librarian a guideline to check that the books suggested are available in the library and if not, to initiate immediate action to acquire new editions and required multiple copies. This policy helps to make available on maximum possible ratio all the books for required and supplementary course contents so as to enable the lecturers and students to start the course and to begin their studies promptly from the very beginning of the academic year.

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*Assistant Librarian, Andhra University Library.

Besides, this makes available the multiple copies for equitable distribution among the many number of students.

Technical section

On priority basis the books relevant to course work, soon after their arrival in the library, should be processed and be made available in respective service points.

Circulation section

This is mainly concerned at three levels of function.

1. Issue of new tickets to the first year students.
2. Issue of books to the borrowers.
3. Discharging the books when the borrowers return them.

Keeping in view the law of 'save the time of students' it is of prime importance to issue the new tickets to students as soon as possible. At other two levels i.e. issue and return counters extra staff should be provided at times when there is heavier pressure at the counter. Out of the total tickets one ticket should be earmarked for use of Textbook for overnight loan or short loan and remaining tickets are meant for using reserve books in the library or for over-night issue of reserve books.

Reserve book system

Maintaining a reserve book system in University Library is a must under semester system of course work. Students use exclusively text books, reference books, government reports, articles in journals, monographs suggested for the course work. These variety of material should be kept in Reserve Book Section in sytematic and controlled conditions. Since they are quite essential they should be in multiple numbers and updated. Such section should be situated in a separate wing in the ground floor of the main library with separate entrance to avoid constant disturbance by the other users of the library. There should be adequate seating arrangements in the reading room as the students can select books according to their individual interest and taste and do more reading relevant to their topics and problems.

Textbook service

Keeping multiple copies of text books in separate source in Reserve Section is quite worth maintaining due to the following reasons:

1. Textbooks are very expensive due to rise in prices and of foreign origin specially books suggested for postgraduates M.A., M.Sc. and M.Com.
2. The period of their use is very limited and parts of certain textbooks needed to be consulted.
3. Majority of the students can not afford to buy because they belong to low income groups and majority are unwilling to own books.
4. Lack of study atmosphere at home.
5. Students are also busy most of day time in class room and they can study till late in the evening in Text or Reserve book section.

Staff

A well qualified team of staff members are to be made available to organise and maintain the regular function of reserve section and good vigilance party should check the movement of books in the section specially before and during the mid-semester, terminal and final semester examinations. Issue facility of books for one to three hours for study in the library premises during working hours and for overnight can be arranged. Defaulters should be penalised heavily in order to ensure prompt return or else issue facility for defaulters can be suspended for some time.

The library should be kept open for a minimum of 12 hours a day.

1. Generally library lacks adequate space accommodation.
2. The trend is ever growing student population.
3. Book resources are limited.
4. Students are free to use library in evening and thus they depend more and more on library for their course work.

After all it is quite necessary to give orientation course to the postgraduates in the University. This course should aim to enable the students familiar with library tools and techniques to increase their knowledge of information sources to develop initiative, ability and independence. Issue of handbooks or library guides to students is helpful. It should contain mainly outline of classification scheme, process of borrowing and return of books, description of the catalogue and its use, services given, reference service, inter-library loan, opening and closing hours, regulations to be observed by students, and to inform the students the style of writing project reports, techniques of compiling bibliographies, etc. In this way the staff can teach the students to use the library effectively and efficiently. □

Functions of a Coach

S. Srivatsan[*]

In this brief write up, the Author has ventured to present a "Holistic Approach" related to the part played by a coach in his chosen *Area of effort*. The premise on which the 'concept of coaching is built/developed relates to the general '*Background*' and '*Training*' of the coach in the field of '*Physical Education*' in general and '*Coaching*' in particular. To think of a *Coach* without "Adequate background in Physical Education", is like "*Building A house without foundation*". Physical Education experiences and qualifications are necessary adjuncts to the coaching background, certification and profession. Hence at the very outset it is to be made clear, that any individual who would like to pursue a career in "*Sports Coaching*", should necessarily satisfy basic requirements in the field of professional training in Physical Education leading to the acquisition of a diploma/degree or even a Post Graduate qualification in physical education. Such a combination of Physical Education and coaching qualifications will certainly *bound to strengthen* the work of the coach. Accordingly the functions of the Coach, especially in the modern day and "*Science Oriented*" world, may be summarised as under:

1. *A Coach is as much a Teacher* as any other subject Teacher and therefore, one of the most *important responsibilities of the Modern Coach* is to learn along with his/her wards, so that each trainee, may be prepared to the maximum potential in the chosen Sport/Game.

2. *The Coach should be able to meet the demands* placed on him/her assignment and live upto the expectations placed on him/her. It is not just training the '*Brawn*' of each sportsman/sports-woman but educating the '*whole individual*' through his/her precepts (examples) such as hardwork, determination, consistency, soul killing effort, cheerfulness and above all dedicated attitude to '*Sport Training*' and '*Sports Performance*'. Coaching is not merely training the body to perform some physical activities, but it is a blending of the reaction of the '*whole personality*' to the task of 'Superior performance' in Games and Sports.

3. *The Coach should be 'Cheerful'*, so that he/she can create an atmosphere of fun and enjoyment for those who work and train hard under his/her guidance. Every sportsman/sportswoman should be guided to be cheerful and enjoy work outs *individually* as well as *collectively*. This attitude is very helpful in overcoming defeats, setbacks and even injuries which are an integral part of "*Competitive training*". A wise coach is always cheerful, humorous and helpful to instillin the minds of his/her ward the importance of 'Relaxation' through the medium of *cheerfulness*, particularly under the rigours of '*Soulkilling effort*' which is the basis of *superior performance in games and sports*.

4. *Coaching involves several situations confronted by the up and coming coach*' as well as the '*Seasoned coach*', and any indication on the part of the coach exhibiting his/her incapability, bad temperament and high sensitivity, will only lead to lack of confidence in him/her from the trainees, in addition to creating a sense of mutual *distrust and disrespect*, which, if not attended to at once, may become beyond repair consequently. Therefore a wise Coach would not only be *firm* in his/her dealings but also be *as friendly as possible* to help individuals in overcoming difficulties during training and competitive sessions. Coaching, as a matter of fact, is a process of friendly relationship guided by positive educational influences.

5. *A Coach should avoid as far as possible being indifferent* to any Athlete/Trainee under his/her care and such an attitude of co-operation, interest and personalised effort on the part of the coach would usher an atmosphere of trust and respect, so essential for proper learning situation under competitive sports. The Trainee always looks up to his/her coach as *an ideal model* to follow.

6. *The Coach has to make great demands on all the trainees* for their 'All round development', and this is in addition to the demands the trainees put up in their relationship with the coaches. Therefore coaching involves a '*two-way traffic*' between the coach and the trainee, founded on *a genuine interest in each others responsibilities and duties*. The Trust of a trainee in the coach is *never demanded* but it is always earned, but this is so, only when the coach delivers his/her goods and is fair in his/her dealings with the wards.

7. *A Coach in general is all purpose individual*, in addition to being a specialist. Knowing '*every thing of something*' (Specialist) and also '*Something of everything*' (Generalist) makes a coach, a much respected person in the eyes of the trainees, because young trainee look for all round knowledge of their coaches in addition to being an *Expert* in a particular field. Such an atmosphere in coaching will certainly foster the intellectual development of an *Up and coming sportsman/Sportswoman*.

8 *The Coach should be in the command of a very* high degree of technical and scientific knowledge and this will ensure overcoming of problems related to the training in the concerned game/sport. Some of the common problems for the trainees are:

(a) Performance stagnation (Plateau part in Learning curve)
(b) Technical errors.
(c) Basic mistakes etc.

(*Contd. on page 245*)

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A Report on an Asian Regional Seminar

The report appearing below is a result of the participation of the writer, Miss A. K. Anand, Chairman, Department of Library Science, Panjab University, Chandigarh, in the Seminar. Since Library Science/Library and Information Science Courses are being conducted in about 45 Universities in this country leading to B. Lib. Sc., M. Lib. Sc., M. Phil and in certain cases doctoral degrees, the recommendations of the seminar, the writer hopes, would be of significance to educational planners.

Indebtedness is being expressed by the writer to the Unesco/PGI, the sponsors of the seminar, to Mr. Anthony Thompson, Professor A. Neelameghan, Dr. Picache, Dean Institute of Library Science, University of Philippines and the Faculty of the Institute for providing the opportunity of attendance and participation in deliberations.

An UNESCO—UP/ILS Asian Regional Seminar on audiovisual (AV) and computer-assisted instructional (CAI) aids *in Library and Information Science* courses was organised by the Institute of Library Science, University of the Philippines (UP/ILS) in association with the Unesco National Commission of the Philippines and the Division of General Information Programme of Unesco (Unesco/PGI) for teachers of library and Information Science from 10 to 20 November, 1981 in Manila. The Seminar was aimed at providing an opportunity to selected personnel from this region to share experiences and ideas on the possibilities of mobilizing, developing and utilizing audiovisual and computer-assisted aids as well as suggesting areas and means of cooperation in this field with a view to improving the effectiveness and efficiency of learning and teaching.

There were 19 participants from 10 developing countries of Asia; 5 from Philippines, 3 each from Thailand and India, and one each from S. Korea, Bangladesh, Singapore, Sri Lanka, Indonesia, Malaysia and People's Republic of China.

The seminar included a number of lectures, demonstrations and practice sessions by resource persons. Anthony Hugh Thompson, the seminar director, discussed the need, scope, types and designing of the instructional aids and packages in library and information science courses. A case study of integrated use of audiovisual and computer-assisted instructional aids was also presented in addition to lectures on certain other topics

Professor A. Neelameghan, Project Coordinator, Postgraduate Training Course for Science information specialists in Southeast Asia, shared the experiences of the Institute with the participants on instructional aids developed at UP/ILS to facilitate information transfer/communication between teacher and trainees. He discussed the philosophy behind this effort, various categories of the materials of interest, and mode of mobilization and source of acquisition. Availability of funds, of local equipment, capability to prepare materials and use of equipment were mentioned as the major influencing factors. Though some audiovisual presentations and computer simulation packages were had free of cost from cerain organizations, obtaining the material on loan or exchange has recently been initiated by the institution. The institute has developed instruction on terminal operation for computer-assisted information *system (COMPAIS), the on-line interactive computer* based information system which is being used for training and hands-on practice in information system, design and operation.

The discussion on these aspects was useful because the philippines environment provides similarity in certain aspects to that of the countries of the participants.

The recommendations of the seminar are as follows :

(i) It is highly desirable that institutions in developing countries offering courses/training programmes in library/information science give serious attention to mobilize, develop and utilize AV and other instructional aids so as to facilitate and improve the instruction/learning process. As far as possible, the trainees should also be helped to use AV and other aids in their class presentations.

(ii) It is desirable that a national policy be formulated (by the appropriate government/ministries/agencies) to assist library and information science schools to obtain AV and other equipment and materials at subsidized prices and/or with waiving of import duties and restrictions on such equipment.

(iii) Schools of library and information science should coorperate and collaborate among themselves in sharing and developing of suitable AV and other instructional aids. They should also seek the cooperation and help of institutions specializing in educational technology, media technology, etc. in the development of instructional aids for library and information science subjects.

(iv) It is recommended that a national organization such as the national library or the national documentation centre takes responsibility and be given assistance and resources to develop AV aids in collaboration with appropriate agencies and institutions and make them available for teaching library and information science subjects.

(v) At least one or two schools of library/information science in a country should offer courses in AV and other teaching aids. Periodic national seminars and workshops on the preparation and use of specific types of instructional aids would help to promote the use and development of such aids for library/information science teaching.

(vi) International organizations, such as Unesco, FID, and IFLA that are promoting programmes and projects in library/information science education especially in developing countries, could sponsor the preparation of guidelines on the minimum equipment and type of teaching materials and their utilization in instructional programmes in library/information science with special reference to developing country contexts.

(vii) Unesco and other international organizations should provide assistance and award fellowships to appropriate candidates in developing countries to specialize in AV technology (for use in library and information science courses) through study, observation, participation in workshops, *etc. in other countries.*

(viii) International organizations such as, Unesco, FID, and IFLA should assist selected library/information science schools in developing countries to mobilize and develop appropriate AV and computer-assisted instructional aids.

(ix) Regional programmes/projects for the selection and development of AV and other teaching aids to serve as models, for loan and for other modes of distribution to library/information science schools and programmes in the countries of the region, are desirable and could be supported through international and regional assistance agencies. Regional programmes in educational innovation, such as the APEID, have an important role to play in such regional teaching aids projects in library/information science.

(x) With a view to improving teaching capabilities in library and information science in the Asian region, it is recommended that a series of regional seminars on AV and CAI aids organized in different countries of the region through inter-country cooperation and international funding.

(xi) It is desirable that a regional programme for the training of teachers of library and information science in the Asian region, especially in the use of AV and CAI aids, be established through *inter-country cooperation* and *internationa* assistance. □

Functions of a Coach

(*Continued from page* 243)

These can be easily overcome if the coach can apply his/her own skill and experiences and accordingly set goals/tasks that are easily achieved by the Trainee. In other words coaches should have "*Realistic Targets*" *for their trainees* and help in achieving these targets.

9. *A conscientious coach should exercise considerable thinking*, while planning and prescribing, the training programme for the wards. "*Aerobic*" or "*Anaerobic*" aspects of training and the schedules for such efforts are to be prepared carefully and implemented under the watchful eyes of the coach. Training sessions are not left to chance. An *Educated coach* (not merely a trained coach will keep a track of the performance of his/her wards and in the light of this, check and recheck difficulties faced by each individual trainee. Such an effort will pay unbounded *dividends* in the form of "Excellence of performance" by the wards in the chosen sport/game.

10 *Wise coach not only knows the theoretical aspects* of his/her sport/game but can well demonstrate the sequences involved in superior performance. A knowledge of the 'Bio-Mechanics' of sports related to both the sexes assisted by pooled knowledge from the areas of 'Human Psychology, Anatomy, Physiology etc. will reinforce *the Efforts* of the coach in his/her dedicated work towards the establishment of '*Superior performance*' by his/her wards.

11. *A coach should have good public relations*' approach and while coming into contact with other coaches or officials or spectators or press personnel etc. he/she should be capable of dealing with these individuals and apprise them of the purposes of coaching in sports/games and the main functions/role of a coach. A coach, by his/her qualities of Physical fitness, thoroughness of knowledge in the concerned sport, his/her past performance and by his/her total personality should be able to earn respect from all concerned.

In conclusion it can be said that in addition to making the wards achieve 'outstanding performance', in the chosen area of sport/game, the coach should be able to develop each individual trainee into a '*He-man*' or *She-woman*' in the true sense of the expression. The knowledge and wisdom required by the coach is not acquired by magic—but can be only related to the functional experiences of the coaches, under the '*Overall movement education*' or '*Physical Education*, confronted from time to time. □

Heart Trouble and Physical Activity

P. K. Pande*
J. S. Naruka**

Physical conditioning by selected individuals suffering from angina pectoris or a myocardial infarction can reduce their clinical manifestations of CHD, improve their physical working capacity and enhance their cardiovascular function and efficiency. In many respects the physiological changes that occur in cardiacs with conditioning are quite similar to the changes seen in their asymptomatic counterparts except that the inter individual morbidity in the cardiac's conditioning response seems to be substantially greater.

It is also observed by the various investigators that a conditioning program of progressive walking can reduce or eliminate anginal pain, electrocardiographic abnormalities and the need for nitroglycerin at rest and during exercise in selected individuals with angina pectoris. It has also been emphasized that there is need of careful selection of individuals for such a treatment and those individuals should be rejected when exercise may prove detrimental to health.

Due to participation in a physical conditioning program some improvements in working capacity may result because of psychological changes associated with participation in any sort of activity. Some such type of improvement is always not only due to physiological response. Both objective and subjective measures indicate that for many cardiacs physical conditioning results in a reduction in depression and hypochondriasis, an increase in self confidence, particularly as it relates to the performance of physical tasks and an improved sense of well being.

It has not been adequately defined that what effect, if any, physical training has on the frequency and severity of recurring myocardial infarction. Hellerstein Brunner and Gotheiner have reported that postinfarction patients participating in a program of active rehabilitation die less frequently from a recurring M.I. than individuals of similar characteristics who do not participate in such a program (Table I). There is a serious question as to the comparability of the active and comparison groups in each of these studies in terms of the nature and severity of their illness. It is possible that cardiacs who are more likely to develop complications following their first M.I. are systematically excluded or exclude themselves from such rehabilitation program.

TABLE I

Study	Death Rate	
	Treated	Comparison
Hellerstein (1968)	1.95	4.5—6.0
Gotheiner (1968)	3.6	12.0
Brunner (1968)	3.1	10.8

Whether or not active physical conditioning increases the speed and frequency at which cardiacs return to gainful employment has not been satisfactorily determined. Due to economic implication, an answer to this question seems highly desirable.

Heart still needs attention

It is also observed in several studies, that no significant difference was seen between the level of on-the-job physical activity and C.H.D. but individual who developed C.H.D. found to be less active during non job hours than co-workers who did not develop C.H.D. Though, the difference in total C.H.D. incidence or prevalence varies substantially among studies, but it is obvious that when individuals are classified according to their occupation as 'less' or 'more' active, the more active tend to experience less total C.H.D.

1. How can sedentary individuals be motivated to increase their habitual physical activity to an acceptable level and retain their participation as a life-long habit ?
2. What is the type and amount (intensity, duration, and frequency) of physical activity necessary to increase and maintain the physical working capacity and cardiovascular function of cardiacs as well as asymptomatic individuals ? How can we minimized costs to participants in the areas of resources, time and inconvenience ?
3. What safety precautions and monitoring procedures are necessary during the exercise testing and conditioning of "high risk" but asymptomatic individuals, angina pectoris patients and cardiacs ?

Though beginning is already made at certain places in India (Jaipur, Medical College), detailed studies on large scale are needed to improve our understanding of the prognostic and diagnostic significance of electrocardiographic abnormalities that may occur during exercise testing at level upto maximum in asymptomatic as well as C.V.D. symptomatic individuals.

Lastly, it may be said that whatever little work is done has shown that cardiac disabilities do not contraindicate athletic activity. The extent and degree of physical activity must be explained on the estimation of functional capacity. As a rule, improvement in general physical fitness is related to an increase in cardiovascular functional capacity. Every cardiac case should be given the opportunity to engage in sports activity within the framework of his own individual capacity. □

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Convocation

Education Structure

"Today education has to face many difficulties. Many of them are common to all Universities. The steep rise in the prices of books, the slender incomes of the Universities forcing them to pay somewhat insufficient emoluments to their teachers and other employees and lack of suitable accommodation and playgrounds because of the high costs of construction of buildings and freeland, are some of them. To this is added a general unrest among the students who see a difficult and bleak future after they have worked hard and acquired their degrees spending a considerable part of the wealth of their families some of whom could ill afford this expenditure. The large number of students who enter the portals of the Universities do so, now, not so much to seek knowledge as to equip themselves with a degree which may count higher than that of other contestants for the same job.

"This is a poor commentary on the aim of our University education but if the truth be told that is the only aim left...The problem in short is of numbers seeking education of this kind and the lack of resources with the University to deal with the problem at optimum efficiency.

"I have suggested discouragement of University education as merely a means of competition for jobs, when the kind of education one receives, is hardly relevant. Performance at the examination is the sole test and aptitude is never investigated and specialisation is never demanded. I have suggested that a little less value should be attached to a mere degree and that for most employments the performance at school plus performance in aptitude tests should take the place occupied today by a degree. I repeat this again today but without elaboration.

"My effort today will be to analyse before you Nation's requirements from Universities. The first is that our Universities should march with other Universities wherever situated in scholarship, research and performance. We seem to be satisfied with a small share in the laurels which are earned. We have to reason be proud of our Noble prizemen, Tagore and Raman. We begin to count even those who, either themsevles or their families, were Indian at some time. This is a desperate attempt to increase the numbers but even two or four are very small compared with twenty six which my college at Cambridge can boast of and in the University there are many more, to say nothing of other Universities who also contribute to increase the number. This clearly points to one fact that our Universities do not impart the kind of education which will lead to such performance and Tagore and Raman achieved these distinctions not because of what they learnt but of their own colossal intellect.

"Can we say of many of our Universities that their total educational preparation is sufficiently strong for us to expect a great scientist, a great literary man or a great philosopher ? We simply do not aim at such excellence. We are satisfied with imparting a rather mediocre education in each discipline and stop at that. Research is of a very attenuated kind partly because of lack of necessary and costly equipment and partly because our research is not deep enough. We are wasting our money on educating a large number of persons up to a point where they can enter employment and we use up our funds in this to such an extent that nothing much is left for research of the higher kind.

"So where do we begin? We must either cut down our large manufactories to spare some money for the finer education or find more money. Unfortunately we have too many other uses for our money. There is poverty, disease, housing, transport and of course preparation for international eventualities to take care of. We cannot starve these demands. If our resources are limited, we must so frame our educational institutions that by over production of similar types we do not use up the available resources leaving little for finer education.

"Therefore, our educational efforts should be so arranged that we provide men qualified for all ordinary employment from the highest school examination and we send away a large number to technical institutions where job-oriented education will be arranged for them. Then we leave the Universities for those who wish to be academics, researchers and writers. A trifurcation of our education in its totality will mean a sufficiently high school leaving education sufficient for most jobs, a highly intensive technical education for those who need this kind of education for technical employment and a higher education only for those who can put it to use in some way." *[Excerpts from the convocation address delivered by Shri M. Hidayatullah, Vice-President of India, at the Bhopal University]*.

Personal

1. **Prof. T.B.K. Menon has taken over as Pro-Vice Chancellor of the University of Cochin.**
2. **Prof. C.N.R. Rao, Chairman of the Solid State and Structural Chemistry Unit & Materials Research Laboratory, Indian Institute of Science, Bangalore, has been elected Fellow of the Royal Society, London. He is the only chemical scientist in the country at present with this unique distinction.**

Campus News

Faculty Improvement Programme

The University Grants Commission, had identified Smt. R.P. Chauhan Arts and Smt. J.K. Shah & Shri K.D. Shah Commerce College, Vyara (Dist. Surat) affiliated to the South Gujarat University, Surat, for the Faculty Improvement Programme for two years 1979-80 and 1980-81. Given below is a report received from the College.

The scheme of Faculty Improvement was primarily meant for the general improvement of the Faculty but the location of the college in a tribal-rural region added special significance to it. Two broad objectives of improving and strengthening the existing faculty and the attainment of the student involvement leading to the improvement of the level of competence were kept in view.

Broad outline of the programme carried out follows.

A. Assessment of Teachers: This programme included self assessment (micro teaching), assessment by fellow colleagues, assessment by students and assessment by experts.

B. Teaching Methods : Observation of classes of other colleagues and the observation of class lectures of prominent teachers invited from outside was done aiming at imbibation of methods and consequent improvement.

C. Improved Teaching Aids : Adequate use of audio-visual aids like display of films, filmstrips, playing of tapes and cassetts was made. A self contained Language Laboratory has been installed.

Enrichment in form of addition of books, journals, preparation and display of charts and preparation of handouts for the use of students was also successfully tried.

Over and above these the teachers were deputed to various conferences, seminars, symposia etc. Places of academic interests were visited by the faculty enabling them to hold discussions with eminent academicians and experts.

Assignments on salient topics of syllabi were also arranged.

At different stages of the programme necessary help in form of material and expertise were provided by the British Council and the South Gujarat University Library.

The most outstanding feature of the whole programme was the organisation of following seminars : Modern Western and Gujarati Drama and Stage; Problems of Translations; Tribal Development; Problems and Prospects; Study of Economics and the undergraduate syllabi; Development schemes for colleges and teachers (UGC); Development of Library services.

With a view to nursing the talents of research among the faculty and to bringing them into closer and vital contacts with the society at large, consequently leading them to study oriented research following projects were taken up as Field survey work and study projects.

Placement survey of Tribal students graduated from this college; Socio-economic problems and attitudes of tribal students availing higher education; Study of tribal life reflected in popular tribal folk songs and the compilation of the vocabulary of words used in agricultural work among the chaudhari tribe * ; Attitudes of would-be graduates towards the selection of profession; Gujarati terminology of marketing; Utilisation of college library facilities by teachers and students mainly in English, Gujarati, Economics and Sociology; A study-collection of critical articles on Life and works of Kalidasa; Difficulties experienced by teachers in reading-teaching through English Language; A study of variations of pronunciations in British and Indian English; A study of drop outs among the tribal students admitted in the college during the year 1975-76 * ; Impact of higher Education on the tribal students of Vyara college*.

Titles denoted by (*) have already been published as separate publications of the Institute of Tribal and Rural Development Research established as an autonomous body within the fold of the college?

Correspondence courses at Madras University

The Education Minister of Tamilnadu, Mr. C. Aranganayagam, laid the foundation-stone of a building for the Institute of Correspondence Education of the University of Madras.

The following 11 courses are offered by the institute, six at the undergraduate level and five at the postgraduate level: B. A. History (English Medium), B. A. History (Tamil medium), B. A. Economics (English medium), B.A. Tamil, B. A. English, B. Sc. Mathematics (English medium), B. Com. (English medium) and M. A. History (English medium), M. A. History (Tamil medium), M. A. Economics (English medium), M. A. Tamil, M. A. English and M. Com. (English medium).

The courses are open to candidates all over India.

The syllabi for all the courses are the same as for regular college candidates. The learning materials are being prepared by university and college teachers under the supervision of the Chairmen of the Boards of Studies concerned. The printing of lessons and their despatch to the candidates are being undertaken by the institute.

The institution is also involved in the Crash Programme of the Tamilnadu Government for Inducted teachers of Higher Secondary Schools. These teachers are offered coaching in M.Sc. courses in Mathematics, Physics, Chemistry, Botany, Zoology, and Home Science and M. A. Economics. They attend the selected colleges in summer and semester holidays in November or December. The colleges conduct practicals and give instruction on certain portions in the theory part. For the remaining portions in the theory part, the institute supplies lessons prepared by the professors.

The institute couducts contact seminars in nine centres, Madras, Cudalote, Vellore, Salem, Erode, Coimbatore, Thanjavur, Tiruchirapalli, and Madurai, at which teachers of the university departments and the affiliated colleges conduct classes. The first phase of personal contact programme was conducted in Thanjavur Tiruchi and Madurai and the classes at Madras and other centres began on Feb. 13 and 14.

National workshop on item banking for MBA admission test

The Research Cell of the Association of Indian Universities was approached by the Vice-Chancellor, Annamalai University to prepare an admission test for M.B.A. programme of the Department of Business Administration of the university. In the past selection of about 50 candidates out of 1500 applicants had created all problems and a need was felt to create a highly discriminating, valid and reliable admission test to serve as one of the components of an admission package. A test was created with the following sections:

Section One: Reading Comprehension, 25 Items, 25 Marks, 40 Mts.

Section Two: Verbal Ability, 20 Items, 20 Marks, 20 Mts.

Section Three: Numerical Ability, 30 Items, 30 Marks, 30 Mts.

Section Four: Business Interpretation, 30 Items, 60 Marks, 45 Mts.

Section Five: Business Application, 25 Items, 25 Marks, 30 Mts.

Section Six: Business Judgement, 20 Items, 40 Marks, 35 Mts.

A procedure was suggested to the University by which credit or weightage can be given to the performance of the candidate in the previous qualifying examination. Here it was suggested that students from different streams of Arts, Commerce, Science and Engineering who seek admission with varying percentage of marks would be given credit dependent upon the position that they hold within their groups. This means that a recognition is made to equate very good performance in Arts (around say 55%), very good performance in Science (around say 65%) and very good performance in Engineering (around say 75%) and all these candidates will be given an equal credit.

The admission test having a high discrimination power and dealing with testing abilities which are relevant for success in MBA programme was prepared and administered. This was followed by an interview with the candidates and final selection was based on the aggregate marks secured by the candidates. A computer analysis of a random sample of 467 candidates yielded very satisfactory results in terms of total reliability around .95 and individual items ranging in their discrimination from .2 to .7. Most of them are around .5.

Inspired by this experience and hoping that such services could be increasingly demanded by many Universities in the future, the Research Cell proposed to constitute an initial bank of items to go into at a centralised place so that an admission test could be put together in quick time and made *available to the* university needing them. To this end a National workshop was arranged inviting *participants from* several universities having MBA Programme, which was held on 15th to 19th February, 1982 at Poona. In addition, a few resource persons were also invited to help at the workshop.

The National Workshop on Item Banking for MBA admission test had before it the following objectives:

1. To review the procedures of admission adopted in several universities/institutions as at present.
2. To arrive at a format of Admission Package that can be considered for adoption in several universities.
3. To attempt to constitute an initial bank of items for the written test component of the package.
4. To consider such other changes/procedures relevant to implementation of this admission packages.

Every participating university reported admission procedures adopted as at present. After a good deal of discussion on the validity and usefulness of such procedures adopted, the Workshop recommends:

1. That the admission package must consist of
   - (i) Prior achievement credit component involving a system of weightages to marks/grades obtained in qualifying examination, co-curricular and extra curricular activities, earlier relevant experience in the job and the like.
   - (ii) A written admission test battery component involving an admission test with sections
     - (a) Reading comprehension—20 to 30 items; 20 to 30 marks; 30 to 45 mts.
     - (b) Verbal abilities—20 to 30 items; 20 to 30 marks; 20 to 30 mts.
     - (c) Numerical ability—20 to 30 items; 20 to 30 marks; 20 to 30 mts.
     - (d) Data interpretation ability—20 to 30 items; 20 to 30 marks; 25 to 35 mts.
     - (e) Application & Judgement abilities—20 to 30 items; 30 to 45 marks; 40 to 45 mts.
   - (iii) Group Discussion and individual Interview consisting of testing abilities of com-

munication (oral & written) summarising, critical thinking, evaluating and original thinking. The abilities to react sharply and spontaneously to current affairs and knowledge related to MBA study can also be tested. Where Group Discussion/Interview cannot be administered, a written test in Environmental Awareness and Personality profile may be substituted.

(iv) Equal weightages to these components be given: There should be a Comprehensive format for the written test and a bank of items, both of which can be used by the universities to suit their individual/situational requirements.

2. The tests should be predictive of future performance instead of measuring the past achievement.
3. It is recommended that the scores of the admission test conducted by a centralised agency (like AIU) should not be revealed to the students in any testing except only to the university where the students would like to apply.
4. It is recommended that even those who are likely to graduate in the near future be allowed to take the test on the basis of a qualifying previous examination's credit up to that point (5th semester or 2nd year exam.) but in no case be allowed to be on the course before completing all the formal requirements for admission namely acquisition of a degree, admission test, group discussion and interview.
5. It is further recommended that the University and the UGC may consider the management faculty in a University distinct from either commerce or any other faculty and help the management faculty grow and develop by providing relevant opportunities from time to time. Also for the development of University Management Faculty some programmes may be conducted by IIMs in the form of sandwich programme.

In addition to the participants of the workshop set out to prepare a fairly large number of items in each of these sections after arriving at a concensus in relation to nature and types of items, abilities to be tested and relative weightages. In all, they produced 35 passages for *Reading Comprehension* Section of the test; 350 items for *Verbal Ability* section; 331 items for *Numerical Ability Section*; 143 items for *Data Interpretation* Section and 20 passages for *Application and Judgement, Section*.

The Research Cell proposes to constitute a Bank of Items in different sections after prevalidating these items and also securing some more from the participants of the workshop. It is hoped that this Bank stored in the memory of a computer will help draw items for a test for any university needing it in future.

30 p.c. of colleges are non-viable

The Union Education Minister quoted the Chairman of the University Grants Commission as stating that 30 per cent of about 4,500 colleges in the country were non-viable, while answering a question in the Lok Sabha recently.

When asked whether the Government had considered that such sick colleges should be closed down to use the buildings for evening classes. The Minister replied that the Central Government had not considered any such proposal for, decisions on the establishment of new colleges were taken by the State governments and the universities concerned.

While the Central Government and the UGC had not laid down any specific norms as a matter of general policy it has been suggested to State Governments and universities that great restraint should be exercised in the establishment of new institutions which would not normally be set up except in backward areas.

They have also been advised to ensure that the need for new institutions is clearly established on sound academic considerations and that adequate resources should be made available to them if they are set up, the Minister said.

Seminar on botany at Patna

A national seminar on recent trends in botanical researches was conducted by the Botany Department of Patna University recently.

The seminar discussed the recent trends in botanical research. Over 200 delegates attended the conference.

The Chancellor, Dr A.R. Kidwai, opened a new botanical laboratory on the campus of Patna Science College constructed with the assistance of the University Grants Commission.

Besides, the botanists honoured Prof R.P. Roy, Director of the UGC Special Assistance Centre of Patna University for his outstanding contribution to botany.

Fusarium investigations by BHU scientists

Scientists of the Department of Pharmaceutics, Institute of Technology of the Banaras Hindu University have investigated the damage caused by Fusarium in Varanasi and adjoining districts. In the semi-arid zone of the district Mirzapur, Fusarium has appeared as a vexing problem for growing oil seed crops suitable for low rain-fed area.

Likewise, the micro organism has practically rendered all the mango orchards of the area totally abortive.

The spoilage of a sizable amount of maize and some important medicinal plants, e. g. *Abrus precatorius*, *Pimpenella anisum* (anise) by Fusarium is a recurring phenomenon. The pathogen not only reduces the yield but secretes some poisonous substances while growing on the food stuffs. These toxins may cause various ailments in man and animals, such as, skin diseases, digestive disorder, abnormal proliferation of cells (cancer), mental disorder.

The investigations done by Dr.

D. K. Chakrabarti and Prof. S. Ghosal have resulted in a number of publications and journals.

MSc in polymer chemistry

The Department of Physical Chemistry of Madras University proposes to start an MSc degree course in Polymer Chemistry and Applied Chemical Kinetics and Photochemistry in the next academic year.

For the benefit of working scientists desirous of improving their qualifications a part-time Diploma course in Polymer Sciences is also to be started.

MSc in environmental sciences and management

The Department of Pathology, Postgraduate Institute of Basic Medical Sciences of Madras University will be taking part in the new multi-disciplinary course of MSc in Environmental Sciences and Management by dealing with important aspects of Environmental Pathology.

This is in addition to the MD (Pathology) course already in existence and Diploma Course in Clinical Pathology to be started from April, 1982.

Coaching centre for SC/ST students

On the request of the Ministry of Home Affairs, Government of India, the University of Mysore has started a coaching centre for Banking Service Examinations for Scheduled Caste and Scheduled Tribe students. The intake capacity of the coaching centre is 50 in a batch.

The services of experienced teachers of the University and also experts from Staff Training College of Canara Bank and Syndicate Bank have been used for coaching the students. The University is planning to provide residential facilities to the trainees from next academic year.

GUTA seminar

The Gauhati University Teachers' Association held a seminar on restructuring of courses at plus three (+3) stage of the undergraduate education on 12-2-82 in the Gauhati University Campus. Besides the teachers and the students of the University, representatives of the local colleges also participated in the seminar. The Vice-Chancellor of Gauhati University, Dr. J. M. Choudhury, while inaugurating the seminar exhorted the academic community to give thought to this vital problem of restructuring of courses and come to a definitive opinion on the issue. The President of the Association, Prof. H.L. Duorah, while welcoming the participants pointed out that the inaction is no substitute for caution; while the issue at point requires utmost caution, it calls for immediate action and books no further delay. The Director of College Development Council of Gauhati University, Shri H. Borthakur, explained the purpose behind the seminar and called for resolute action on this vital issue.

The general consensus of the seminar was that plus three (+3) stage of undergraduate education should immediately be implemented; the government should be approached with detailed plans and programmes for release of funds to implement the revised VI plan draft resolution on National Education Policy with 'purpose and vigour'; there should be no two year (pass) degree course as contemplated by the GU Executive Council Resolution of 1977. In the meantime, the GUTA contemplates to give a final shape to the detailed programme with the help of its own expert panel covering all the branches of subjects taught at the undergraduate level.

News from Agril. Varsities

PAU releases new varieties of groundnut, soyabean and rice

Four new varieties, one each of groundnut and soyabean and two of rice, developed by the Punjab Agricultural University have been released for general cultivation in Punjab after approval by the State Variety Approval Committee.

M-197, the new variety of groundnut which is a semi-spreading variety has been recommended for both loamy sand and loamy soils where spreading-type varieties do not grow well owing to non-recovery of full pods at the time of harvest. This variety has been tested against the standard variety C-501 in large scale trials at the Research Stations at Ludhiana, Samrala, and Kapurthala under irrigated conditions for 5 years. The new variety has a shelling capacity of 70 per cent, the average weight of its 100 kernels is 48 gms and it possesses 49.5 per cent oil content. It matures in 123 days and yields about 750 kg of pods per acre.

SL-4, the new variety of soyabean has been developed through hybridization from a cross EC-7965 x Bragg. This variety has been found superior to the presently recommended variety Bragg in yield and disease resistance whereas the earlier varieties were shy germinators, low yielders and susceptible to yellow mosiac virus. The new variety has uniform medium sized creamy grains which contain 20 per cent oil content and 43 per cent protein. The crop matures in 106 days and yields about 640 kg of grains per acre.

The first variety of rice called PR-4141 is a semi-dwarf variety which has long slender grains. Though it is a low-yielder compared to PR-106, it has an edge over it in that it is highly resistant to bacterial blight. This variety has, therefore, been recommended for those areas where the rice crop is prone to bacterial blight. It matures in 140 to 150 days and yields 24 quintals per acre.

The other variety of rice is a high-yielding strain of Basmati rice named Punjab Basmati No. 1 This new variety is only 120 cm tall while the traditional Basmati 370 is 160 cm tall. Because of its semi-dwarf character, it does not lodge under high-fertility conditions. Its grains are aromatic and superfine which closely resemble those of traditional Basmati both in appearance and cooking quality. It matures in 145 to 155 days and on an average it yields 16 quintals per acre.

Institute of Agricultural Sciences celebrates golden jubilee

The Institute of Agricultural Sciences, Banaras Hindu University celebrated its Golden Jubilee Programme and "Farmer's Day" recently.

Speaking as the Chief Guest in the Golden Jubilee Programme Prof. Iqbal Narain, Vice-Chancellor, B.H.U. stressed the need to extend latest technological achievements in the field of agriculture to the rural areas through extension programme. Prof. Narain emphasised that the real contribution of University would only be when people, especially the farmers of the rural areas, were benefitted by the research work and experiences of the teachers and students.

Earlier, Dr. Mahatim Singh, Director of the Institute of Agricultural Sciences, gave a brief account about the achievements of the Institute in various fields.

He said the Indian Council of Agricultural Research had sanctioned a total of ten projects to the Institute. Besides, University Grants Commission and various agencies of Govt. of India had also entrusted various research works to the Institute.

At the "Farmer's Day", Chief Guest Dr. K.N. Udupa, Rector, B.H.U., exhorted the farmers to increase food production as otherwise the country would face famine by the end of this century. He said farming was the foundation for all round development and it was the agricultural scientists who brought green revolution in the country.

Prof. Mahatim Singh, while welcoming the guests dealt with the difficulties which the farmers will have to face in future. He stressed that the agricultural scientists should sit together and sincerely think over the problem of increasing food production.

On this occasion about 500 farmers from the neighbouring districts had discussions with the agriculture experts about their problems.

RAU develops new variety of maize

Dr. T.P. Singh, maize specialist, Tirhut Agriculture College Dholi, stated recently that the scientists of Rajendra Agriculture University have developed a new variety of maize which is very much suitable for summer and kharif season. This variety has been named as 'Composite Suwan' and has yielded 40 to 50 quintals per hectare in the farmers' field during kharif season.

Dr. Singh further added that it has orange yellow grain and matures in 100 to 105 days. The seed of this variety is available in limited quantity at Dholi centre of the university.

Borlaug visits PAU

Dr Norman Borlaug, accompanied by other scientists from the wheat and Maize Research Centre, Mexico, visited the Punjab Agricultutal University recently.

In a dinner meeting with Dr Sukhdev Singh, the Vice Chancellor and other scientists of the University, Dr Borlaug made enquiries about the needs of the Punjab soil after 15 years of production of high yielding wheat and rice varieties. He was told that farmers were now using more phosphates, zinc, sulphur and magnesium to offset the effects of intensive cultivation. He showed great interest in the successful experiments for cultivation of wheat after maize, geoundnut and even rice without any tillage.

Later, Dr Borlaug accompanied Dr K.S. Gill, Wheat Breeder, visited the wheat research area of the University. He told pressmen later that the work on wheat research being done at PAU was among the best in the world. He said at this rate of progress it would not be difficult to find a solution to the Karnal bunt disease of wheat.

Indian school of Mines

DHANBAD-826004

No. 615120/82 Dated : March 23, 1982

MAKE-UP ADMISSIONS IN UNDERGRADUATE ENGINEERING PROGRAMME

Corrigendum

In partial modification of this office advertisement No. 615120/82 dated March 15, 1982 (published on page 261 of this issue) the following amendments may be noted.

(a) FOR ADMISSION TO III SEMESTER OF 4-YEAR COURSE

(i) "Pass in English in Intermediate or equivalent examination is essential for B.Sc. candidates"

(ii) **Experience** is not required for B.Sc. candidates.

All other requirements remain unaltered.

REGISTRAR

Afro-Asian team visits HAU

Seventeen rural development and planning experts from 10 Afro-Asian countries visited Haryana Agricultural University recently.

After visiting the research farms of the university, representatives of Jordan, Syria and Egyt hinted that they might send their farm experts to study dry-land farming techniques developed by the university.

The Philippines representative said his country might arrange visits of HAU scientists to the Philippines under an exchange programme.

The experts held discussions with senior members of the university faculty.

Assessing pollution

Mango leaves and comelina, a common roadside weed, can assess the total air and dust pollution. The finding was made in a research project on the "effects of industrial air pollutants on plants" sponsored by the University Grants Commission in Bombay. Maps showing the distribution of air pollution in Bombay city have been prepared on the basis of the study of mango leaves and comelina. Mango trees and sunflower have also been useful in assessing air and dust pollution.

Laboratory experiments carried after controlled fumigation of plants by sulphurdioxide have also shown that 10-day-old plants of "math" (amaranthus viridis) are sensitive and monitor pollution caused by sulphurdioxide, a gas emitted extensively by industry. Similarly, the "guar" (cyamopsis tetragonoloba) and hemp (crotolaria juncea) help detection of ammonia in the air. The intensity of air pollution was evident from the number of leaves damaged and how much of the leaves were affected.

Prof. Ramesh Mohan takes over as President of AIU

We welcome Prof. Ramesh Mohan, M.A. (Lucknow), Ph.D. (Leeds), Director, Central Institute of English & Foreign Languages, Hyderabad, as President of the Association of Indian Universities for the year 1982-83. Elected by the Association at its last Annual Meeting held at Bombay in February, Prof. Ramesh Mohan takes over as President on April 1, 1982 from Prof. G.S. Marwaha, Director, Indian School of Mines.

Prof. Ramesh Mohan began his academic career as a Lecturer in English at Lucknow University in 1941. He was appointed Reader in 1955 and Professor and Head of the Department of English and Modern European Languages in 1961.

He was invited to take up the Directorship of the Central Institute of English and Foreign Languages in 1967.

Prof. Ramesh Mohan has been associated with several important academic institutions and organisations. He was the President of the Indian Association of English Studies from 1975 to 1980. He has been a member of the Executive Council of the Universities of Hyderabad and Lucknow and of the academic bodies of many universities.

He has been convener of the UGC Panel on English and Foreign Languages and is a member of the Committee constituted by the UGC to enquire into the working of Central Universities.

Prof. Ramesh Mohan

He has served on the Board of Directors of the U.S. Educational Foundation in India, New Delhi and the American Studies Research Centre, Hyderabad. He is a member of the Executive Board of the Sahitya Akademi, New Delhi.

He has a number of publications to his credit.

Prof. Ramesh Mohan has travelled widely on academic missions and delegations. He visited the USA in 1957 to study the working and organisation of General Education Courses. He has visited Universities and educational institutions and organisations in U.K., France, West Germany, G.D.R., Hawaii, Tokyo, Hong Kong, Singapore, Vietnam, the USSR and Afghanistan. He assisted the Kabul University in setting up a Department of English. He has participated in a number of International Conferences in Australia, U.K., U.S.A. etc.

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Agarwal, Krishna. Effects of noise as a stressor among subjects of various degrees of dependence-proneness. Meerut University.

2. Bansal, Veena. Hemisphericity, cognitive style, personality structure and biographical factors in creative and non-creative painters. Meerut University.

3. Goel, Neelam. Motivational patterns of high school and intermediate teachers as related to levels of alienation and sex. Meerut University.

4. Gupta, Mohan Lal. Socio-cultural correlates of cognitive abilities and academic achievements of primary school children. Meerut University.

5. Juneja, Rita. Visual recognition memory of high and low creative children in relation to variation in stimulus characteristics. Meerut University.

6. Mehrotra, Rajni. Personality factors, intelligence and self-concept as correlates of deviance, neuroticism and psychoticism among secondary school going students. Meerut University.

7. Mohan Swadesh. Validation study of Krathwohl et. al's model of affective processes. Meerut University.

8. Sharma, Ramesh Kumar. A study of interest level of aspiration and creative thinking of adolescent learning disabled students. Meerut University.

9. Sharma, Ramesh Kumar. A study to assess the effects of contingency management on some cognitive behaviours of students. Meerut University.

Social Anthropology

Puran Chand. Origin and ethnic affinities of Malaneese of Malana Glen, District Kulu, Himachal Pradesh. Panjab University. Dr. V. Bhalla, Reader, Department of Anthropology, Panjab University, Chandigarh.

Home Science

1. Pulikottil, Mary Ukkuru. Effect of coconut oil versus other fats on lipid metabolism. University of Kerala. Dr. L. Prema, Prof., Department of Agricultural Extension, University of Kerala, Trivandrum. Dr. P.A. Kurup, Head, Department of Bio-Chemistry, University of Kerala, Trivandrum.

2. Vimala Kumari, N.K. Effect of dietary factors on the vitamins, mineral and protein status. University of Kerala. Dr. L. Prema, Professor, Department of Agricultural Extension, College of Agriculture. Vellayani. Dr. P.A. Kurup, Head, Department of Bio-Chemistry, University of Kerala, Trivandrum.

HUMANITIES

Linguistics

1. Maheswaran Nair, K. The sound systems of Russian and Sanskrit: A contrastive study. University of Kerala. Dr. K.M.N. Menon, Institute of Social Science, Trivandrum. Dr. R. Karunakaran, Department of Sanskrit, University of Kerala, Trivandrum.

Literature

English

1. Mehreja, Gyan Devi. A listening comprehension course in English for Diploma/Degree students of science and technology: Rationale and model. Panjab University. Dr. D.D. Jyoti, Secretary, Panjab University, Chandigarh.

2. Zope, Motiram. Revaluation of John Dryden as a descriptive critic. University of Indore. Dr. R.C. Ojha, Prof. Department of English, Indore Christian College, Indore.

Sanskrit

1. Kelkar, Chintamani B. Gopachal kshetra kee Sanskrit sahitya ko den. University of Indore. Dr. L.N. Shukla, Department of Sanskrit, Government Sanskrit College, Indore.

2. Surendra Kumar. Kaviratan Akhilanand Sharma: Vyaktitav evam kritatv. Panjab University. Prof. Bhavani Lal Bhartiya. Department of Dayanand Chair for Vedic Studies, Panjab University, Chandigarh.

Hindi

1. Des Kumar. Adhunik samajik sandarbh *mein Tulsi* krit Ramcharit Manas' ka adhyayan. Panjab University. Dr. Laxmi Narain Sharma, Department of Hindi, Panjab University, Chandigarh.

2. Mahinder Kaur. Hindi ekanki mein sangharsh: Pramukh ekankikaron ke sandarbh mein. Panjab University. Dr. V.R. Mehndiratta, Department of Hindi, Panjab University, Chandigarh.

3. Santosh Kumari. *Prasadottar Hindi samasaya* natakon mein madhyavargiya jiwan. Panjab University. Dr. Gian Singh Mann, Government College, Ludhiana.

4. Sharma, Narinder Kumar. Hindi geeti natyon mein yatharthvad. Panjab University. Dr. Gian Singh Mann, Govt. College, Ludhiana.

5. Shyam Sunder. Asprishayata ke sandarbh mein Hindi katha-sahitya. Panjab University. Dr. Yash Gulati, Department of Hindi, Panjab University, Chandigarh.

Malayalam

1. Oommen, C.K. Dukkha darsanam Malayala kalpanika kavithayil. University of Kerala. Dr. P.V. Velayudhan Pillai, Department of Malayalam, University of Kerala, Kariavattom.

Geography

1. Gaikwad, Dilip Digambar. Population geography of a developing district in Maharashtra. Shivaji University. Shri M.G. Bhasin, Department of Geography, D.B.F. Dayanand College of Arts and Science, Solapur.

2. Sharma, Hiralal. Betul-chhindwara ka pathar: Grameen abhivasyon ka bhogolik adhyayan. University of Indore. Prof. A.A. Abbasi, Head, Department of Geography, University of Indore, Indore.

3. Shrivastava, A.K. Rural settlement in Balaghat-Mandla region: A geographical study. University of Indore. Prof. A.A. Abbasi, Head, Department of Geography, Government Arts and Commerce College, Indore.

History

1. Usha Kumari, S. History of adult education in Kerala since independence. University of Kerala. Dr. M.J. Koshy, Department of History, University of Kerala, Kariavattom.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Das, Pratibha. A study on certain psychosocial aspects in psychosomatics. University of Calcutta.
2. Deivasenapathy, P. Motivational determinants of success among small scale entrepreneurs of healthy and sick units at Ambattur Industrial Estate, Tamil Nadu. University of Madras.
3. Gupta, Asha. Sainik shiksha ke prati Nainital zile kee intermediate kakhsha kee chhatraon kee abhivritiyon ka adhyayan. Kumaun University.
4. Kapoor, Prem. Field-dependent/field-independent cognitive styles and sensory motor performance. University of Delhi.
5. Kulkarni, Arun Vishnu Reward expectancies in relation to cognitive styles. Nagpur University.
6. Rajbir Singh. Study of behavioural patterns of age-sex classses during transitional periods in free ranging rhesus monkeys, Macaca mulatta. University of Rajasthan.
7. Teraiya, Jayantilal G. Self perception in various learning situations. Saurashtra University.

Sociology

1. Karuppaiyan, Vinaitheerthan. Kinship and polity among the upland Kallars of Thanjavur District : A study in socio-political organisation. University of Madras.
2. Trivedi, Meena Chimanlal. A sociological study of retired people. Nagpur University.

Social Anthropology

1. Saha, Ranajit Kumar. Inter-ethnic stratification in Manipur Valley : Caste system in a frontier of Indian civilization. University of Calcutta.
2. Yathirajkumar, Ramineedi. School system and tribal community : A study on scheduled tribes of Bhadragiri Block. Andhra University.

Political Science

1. Ghosh, Sekharchandra. Development of the law of the territorial sea and the contiguous zone with special reference to India. University of Calcutta.
2. Hazarika, Puspendra Nath. Committee system in the Assam Legislative Assembly. Gauhati University.
3. Kharlukhi, B.R. *Syiemship in the Khasi Hills* to 1958 A.D. Gauhati University.
4. Lalithalakshmi, S. Kamaraj : The administrator. University of Madras.
5. Mahtab, Nazmunnessa. Pattern of rural development in Bangladesh : A study of the Integrated Rural Development Programme in three thanas. University of Delhi.
6. *Mishra, Kamla Prasad.* The position and the role of the chief executive officer in Janapad Administration of M P. University of Jabalpur.
7. Mishra, Ramnarayan. Regionalism in state politics : A study on political development of Orissa. Sambalpur University.
8. Muthuswamy, M.S.K. Kamaraj : A socio-political study. Karnatak University.
9. Pameecha, Renuka. Elite structure in tribal society : A study of four villages in the Banswara District. University of Rajasthan.
10. Pandit, Girdhar. Tehri kee nirankush satta ke virudh janta ka rajnaitik sangharsh 1885-1949. Kumaun University.
11. Parmar, Aradhana. Techniques of statecraft : A study of Kautilya's *Arthasastra. University of Delhi.*
12. Prinja, Renu. Delegation of financial powers in the Union Government from 1858 to 1975 : A case study of a Government department and a public sector undertaking. University of Delhi.
13. Rajasekhariah, Avaragerimath Hemalata. Karnataka ideology : A study of the political ideas of the Karnataka Movement, 1906-1956. Karnatak University.
14. Srivastava, Jai Prakash. Bees sutriya karyakram ke karyavaiyan evam prabhav ka rajneetik vishleshan. Vikram University.

Economics

1. Alaxender, V.V. Income distribution in Rural Madhya Pradesh. University of Indore.
2. Dasgupta, Rajaram. Nutritional planning in India. University of Delhi.
3. Jalal, R.S. Kumaon mandal mein pramukh sehkarita samitiyon ke vikas kee *privritiyan.* Kumaun University.
4. Meera Reddy, V. Acceptance of sterilization in a rural community : A case study of Chandragiri Samithi. Sri Venkateswara University.
5. Nancy Stella Bai, C. An economic analysis of low income group public housing programme in Madras City. University of Madras.
6. Pandit, Manohar. An inquiry into relationship between the size of family and the parameters of rural economy. University of Jabalpur.
7. Usha, S. Male female wage differentials in an urban labour market : A case study of Madras metropolitan area. University of Madras.
8. Sharma, Lekh Ram. Impact of economic planning on the socio-economic development of Himachal Pradesh. Himachal Pradesh University.
9. Sharma, Rishi Kesh. Drought power planning in Indian agriculture : A case study of Haryana. University of Delhi.
10. Sharma, Surendra Kumar. Madhya Pradesh ke pramukh antrik evam bahrya vyapar. Vikram University.
11. Singh, Upendra Prasad. Economic development of India and Brazil 1950-70. Magadh University.
12. Srivastava, Dinesh Chandra. An evaluation of industrial policy for the development of backward regions in India : A case *study of Gujarat. Sardar Patel University.*
13. Vashist, Gopal Dass. Dynamics of milk production and marketing in Himachal Pradesh. H.P. Krishi Vishwavidyalaya.

Law

1. Baj, S.R. Bonus law and labour management relations. University of Rajasthan.
2. Sharma, Bikram. Role of inquiries and investigations in the modern administrative set up with special reference to the Commissions of Inquiry Act, 1952. Kurukshetra University.

Public Administration

1. Paranjpe, Nalini Shrikant. Administration of welfare measures with special reference to Railway employees at Nagpur. Nagpur University.
2. Shrivastava, Anil Kumar. Role of police in prevention and detection of white collar crime. Ravishankar University.

Military Science

1. Pandey, Ram Surat. Bharatiya pratiraksha neeti san 1947 se Pakistan ke sambandh mein. Avadh University.

Education

1. Banga, Shakuntala. Cognitive processes and personality characteristics of primary school children. University of Rajasthan.
2. Bisht, A.R. A study of stresses in relation to school climate and academic achievement (Age group 13-17) Kumaun University.

3. Goswami, Nilima. Adjustment problems of school going adolescent girls and the development of an adjustment inventory for their measurement. Gauhati University.

4. Moorthy, Aiyampalayam Masagounder. Survey of minimum muscular fitness of the school children of age group 6 to 11 years and comparison of the influence of selected yogic exercises and physical exercises on them. University of Poona.

5. Parasher, Gouri Shanker. The university finances in Madhya Pradesh. University of Saugar.

6. Patel, Ratilal Manilal. A study of general ability as a predictor of academic achievements of the pupils of standards II, III and IV. Sardar Patel University.

7. Pinkee Rani. Behaviour of students in and out of school as related to their moral education: A study for curriculum change. Panjab University.

8. Sharma, Hem Raj. Construction, administration and standardization of an achievement test in General Knowledge (History and Geography) for matric students in Jammu Province. University of Jammu.

9. Srivastava, Anand Swaroop. A critical study of selection procedures for B.Ed. in affiliated colleges of Gorakhpur University with special reference to their functional utility. Avadh University.

10. Teraiya, Jayantilal Govindji. Self perception in various learning situations. Gujarat University.

11. Vasan, Prithviraj. Frequent testing and its effects on learning outcomes. Kanpur University.

12. Vashistha, Kailash Chandra. Personality differences among family-reared and institution-reared boys and girls as indicated by Rorschach ink-blots. Kurukshetra University.

13. Wadhwa, Bhim Sain. A study of the attitudinal structure of university student dissidents within a social psychological framework. Kurukshetra University.

Commerce

1. Bagade, Madhusudan Vasudeo. Management information system for passenger bus transport industry: A special study of Maharashtra State Road Transport Corporation. University of Poona.

2. Bisht, L.S. Uttar Pradesh kee grameen arthvyavastha mein sehkarita ka yogdan. Kumaun University.

3. Kashive, Ramesh Chandra. Economics of production of soyabeans in M.P. University of Jabalpur.

4. Mukhopadhyay, Sunil Kumar. Collective bargaining and industrial relations with reference to selected industries in India. University of Burdwan.

5. Naik, Dilipkumar Gulabhai. Profitability trends of district dairy co operatives in Gujarat. Sardar Patel University.

6. Sainul Abideen, E P. The role of cooperative marketing societies in stabilising planters with special reference to arecanut industry in Kerala. Calicut University.

7. Sarangapani, Chintala Ramachandra Rao. A comparative study of material management practices in public and private sectors. University of Poona.

8. Sharma, Mohan Lal. Financial appraisal of state Agro Industries Corporations in the Northern Zone of India. University of Rajasthan.

9. Shukla, Uday Narain. Uttar Pradesh mein audyogik sehkaritayen: Ek adhyayan. Kanpur University.

10. Subba Roo, Pulapa. Human resources management in Indian Railways: A study with special reference to the last two decades 1960-61 to 1979-80. Andhra University.

11. Upadhyay, Arun. Financial management of railways in India since independence. Kanpur University.

12. Upadhyay, Mulshanker Ladharam. Cooperative land development banking in Gujarat. Sardar Patel University.

Management

1. Ebrahimi, Abdolhamid. Prospects for collaboration between Iran and India in the field of trade. University of Delhi.

2. Gupta, Mahavir Prasad. Transportation system in Delhi with special reference to Delhi Transport Corporation. University of Delhi.

3. Padmanaban, D. A psychological and socio-economic study of entrepreneurship in small scale industries in and around Coimbatore City. University of Madras.

4. Pronab Kumar. Corporate planning and forecasting: A case study of selected central government undertakings. Banaras Hindu University.

5. Soni, Kishan Lal. Personnel problems of the sugar industry in Rajasthan. University of Rajasthan.

6. Wilson, P.R. Financial planning control in public sector undertakings in Kerala. University of Cochin.

Home Science

1. Seth, Mridula. Motivation in adult learners participating in the functional literacy programme in Delhi. University of Delhi.

HUMANITIES

Philosophy

1. Agnelo, Vital Afonso. A study of methodological individualism. University of Poona.

2. Bandyopadhyay, Saradindu. Psycho-analytic view of mind. *D.Litt.* University of Calcutta.

3. Joshi, Anju. The role of religious belief in North Eastern India. North Eastern Hill University.

4. Kuppusamy, C. Sankara and Aurobindo on the Gita: A critical examination. University of Madras.

5. Mehtani, Shanta. Marx's materialism and contemporary materialism. University of Rajasthan.

6. Sampath, R. The philosophy of Ernst Cassirier. University of Madras.

Linguistics

1. Biswas, Sukumar. Morpho-phonemic analysis of the Assamese and Bengali verbals. University of Calcutta.

2. Garg, Ramayan Prasad. Awadhi evam Bagheli boliyon ke sanskrati kshetra mein boliaon ka sankalik adhyayan. University of Jabalpur.

3. Kaleem, Nafeesa. English loanwards in Tamil: An ethnosemantic study. Central Institute of English and Foreign Languages, Hyderabad.

4. Raghbir Singh. A critical and comparative study of the concept of sadhnas in Sanskrit grammar with special reference to the Sadhana-samuddesa of vakyapadiya. Panjab University.

5. Ramakrishna, Saroja. Palghat Tamil dialect. University of Poona.

6. Saraswathi, V. Towards a communicative course in EOP (English for Official Purposes): A study in applied linguistics. Central Institute of English and Foreign Languages, Hyderabad.

7. Shantha, K.M. The structure of scientific discourse in English and Malayalam: A functional study. Central Institute of English and Foreign Languages, Hyderabad.

Literature

English

1. Arulandram, H.G.S. Humanism in the works of Bhabani Bhattacharya. University of Madras.

2. Bhagat, Vimal Kantilal. Imagery of Emily Dickinson. Nagpur University.

3. Brij Mohan Singh. Theodore Dreiser's short stories: A study. Panjab University.

4. Gopal, Salunke Vilas. Thematic structure in Robert Frost: A study. Karnatak University.

5. Hans Raj. The parent child relations in Jane Austen's novels. Himachal Pradesh University.

6. Joshi, Mahendra Ishwarlal. Error analysis and remedial teaching in English with reference to the first year college learners of English in South Gujarat. South Gujarat University.

7. Prem Kumar. A critical study of Keats aestheticism. Magadh University.

8. Saxena, D.C. Charles Lamb as a letter writer. University of Rajasthan.

9. Sowmu, K. Inhumanism in the poetry of Robinson Jeffers and Wallace Stevens. University of Madras.

10. Sriraman, T. A study of Lionel Trilling with special reference to the Arnoldian Tradition in criticism. Sri Krishnadevaraya University.

11. Tiwari, Shivkumar. William Faulkner and the Negro cause. Kanpur University.

German

1. Celine, M. Ambivalence and irony in the works of Joseph Roth. University of Kerala.

2. **Subramanian, B.** Rilke's deutung des daseins-eine interpretation der duineser elegien. Karnatak University.

Sanskrit

1. **Bhat, K. Mahalinga.** Subandhu's, Vasavadatta and Nemicandra's Lilavati: A comparative study. University of Madras.

2. **Chaubey, Shivadhar.** Treatment of dhvani in the Bhagavata purana with special reference to bhaktirasa. Panjab University.

3. **Dwivedi, Madhusudan.** Madhumeh per guduchi ka prayog. K.S. Darbhanga Sanskrit University.

4. **Gattani, Lata Ramkisanji.** Pryashchit ka swarup: Dharma Shastra ke anusar. Nagpur University.

5. **Ghosh, Dipak.** Abhava-visayaka Bharatiya darshanika siddhanta. University of Calcutta.

6. **Goswami, Biswanarayan.** The concept of samavaya in the Nyaya Vaisesika philosophy. D. Litt. University of Burdwan.

7. **Jain, Virdhi Chandra.** Harivansh Pauran ka sanskritik adhyayan. University of Indore.

8. **Mishra, Baidya Nath.** Linganushasnam: Ek samalochnatmak adhyayan. University of Bihar.

9. *Mishra, Narpati. Devi Bhagwat: Ek adhyayan.* University of Gorakhpur.

10. **Nirmala.** Shankar digvijya: Ek adhyayan. University of Delhi.

11. **Pal, Nripendra Nath.** An authentic edition of the text and old manuscript of the Mahabharata translated by *Srinath Brahmana, a poet of the 17th century* of North Bengal (Coochbehar) with commentary. North Bengal University.

12. **Raghu, Sasmer Singh.** Dhvani in Bana's prose. Panjab University.

13. **Sharma, Lekh Ram.** A critical study of myths and legends referred to in Asvaghosa's works with special reference to *Buddhacarita* and *Saundarananda*. Kurukshetra University.

14. **Shastri, Dev Rattan.** Polity in Visnudharmottara Purana. University of Jammu.

15. **Shokeen, Kamla Devi.** Shivaji visayak sanskrit natak. University of Delhi.

Pali

1. **Sarkar, Sambhunath.** Rabindrottar Bangal sahitya-o-Buddha sanskriti: Post Rabindra Bengali literature and Buddhist culture. University of Calcutta.

Punjabi

1. **Devinder Singh.** Critical study of the poetry of Guru Ram Dass. Panjab University.

Hindi

1. **Balakrishnan, P.** Social satire in post-independent Hindi poetry. University of Calicut.

2. **Bhasin, Suman Lata.** Hindi ke vyangadharmi upanyason mein samasthi-chetna kee abhivyanjana. Maharshi Dayanand University.

3. **Devendra Singh.** Hindi ke swatantrayottar kathatmak kavya. University of Gorakhpur.

4. **Dhaila, Rekha.** Smarak sahitya: Vikas, vivechan aur mulyankan. Kumaun University.

5. **Diwakar, Rajmati.** Acharya Hazari Prasad Dwivedi ke katha sahitya ka sahityik aur sanskritik anusheelan. University of Saugar.

6. **Dutt, Karunesh.** Barabanki Janpad kee Hindi kavya prampra: Udhbhav, vikas, vistar tatha vaibhav. Avadh University.

7. **Gautam, Kiran.** Hindi upanyason mein kal tatv. Himachal Pradesh University.

8. **Halawai, Motilal Parashuram.** Acharya Chatursen Shastri: Vyaktitva aur krititva. Karnatak University.

9. **Jain, Shashi Kiran.** Chhayavadi kavya ke rashtriya evam sanskritik pakshon ka anusheelan. University of Saugar.

10. **Jain, Usha.** Chhayavadottar Hindi kavya mein bimb vidhan ka anusheelan. Ravishankar University.

11. **Jha, Indra Kant.** Vidyapati ke granthon ka ek sarvekshana. D. Litt. Magadh University.

12. **Joshi, R.C.** Kumaon geeton ka samajik adhyayan. Kumaun University.

13. **Rondaiah, C.V.** Nai kahani mein nagar jeevan aur manaviy asambandh. Sri Venkateswara University.

14. **Mahender Partap.** Lakshmi Narayana Mishra ke natakon mein sanskritik chetna. University of Delhi.

15. **Mishra, Jiwoot.** Ajneya ke kavya ka alochnatmak adhyayan. University of Calcutta.

16. **Mishra, Ras Bihari.** Adhunik Hindi katha sahitya aur ati yatharathvad. University of Gorakhpur.

17. **Misra, Daya Shankar.** Prasad Sahitya mein itihas tatva. University of Delhi.

18. **Pandey, Bhudev.** Dr. Sampurnanand kee Hindi rachnaon ka anusheelan. Kanpur University.

19. **Pandey, Rashmi Rekha.** Hindi prahasan: Prampra evam rupvidhan. Kanpur University.

20. **Rai, Baikunth.** Bharatiyaprema khyanakkavya parampara aur Daudkritchand ayan. University of Calcutta.

21. **Sharma, Asha.** Swatantrayottar prabandh kavya ka saundaryashastriya adhyayan. Kanpur University.

22. **Sharma, Sharda.** Acharya Kshmendra ke auchitya siddhant ke sandarbh mein Ramcharit Manas ka adhyayan. University of Rajasthan.

23. **Sharma, V.K.** Swatantrayottar Hindi katha sahitya mein mahayudhottar angrezi sahitya ke vibhin-andolanon ka prabhav. Kumaun University.

24. **Shisode, Bhimrao Shamrao.** Swatantrayottar Hindi-upanyason mein jati aur vargh sangharsh. University of Poona.

25. **Shukla, Bachchu.** Hindi sahitya ke vikas mein saraswati ka yogdan. Magadh University.

26. **Singh, Amar Bahadur.** Ritimukt kavya dhara: Vastu Parvertak shilp aur uplabhdhi. Avadh University.

27. **Som Datt.** A contrastive analysis of standard Hindi and Bangeru. Panjab University.

28. **Srivastava, Archana.** Bharatiya riti shastra aur adhunik shaili vigyan ka tulnatmak adhyayan. University of Gorakhpur.

29. **Srivastava, Kusum.** Hindi laghu upanyason ka sansvnatamak adhyayan. Himachal Pradesh University.

30. **Srivastava, Mamta.** Nayee kahani mein prem samvedana ka vikas. University of Gorakhpur.

31. **Suneja, Sudarshan.** Aatmkathatmak shaili ke Hindi upanyason ka adhyayan. Panjab University.

32. **Tandon, Chandra.** Tulsidas aur unke Brajbhasha kavya mein loktatva evam adhyatama darshan. University of Calcutta.

33. **Tripathi, Krishna Kaul.** Sat Nam Sant Jagjivan Sahib: Siddhant aur sahitya. Avadh University.

34. **Tripathi, Rajni.** Hindi abhinav geeti kavya, 1960-75. Kanpur University.

35. **Vajai, Parmanand.** Baiswara janpad ka shringar kavya. Kanpur University.

36. **Verma, Joginder Singh.** Kavishwarnath Renu ke katha sahitya ka samaj shastriya vishleshan. Himachal Pradesh University.

37. **Virendra Singh.** Adhunik Hindi kavya mein vaigyanik shodh: Bhartendu yug se 1960 tak. Avadh University.

Urdu

1. **Farida Alam.** Shakeela Akhtar, her life, literary works and achievement. Magadh University.

2. **Malik, Mohd. Sharif.** Thakur Poonchi: Life and works. University of Jammu.

Bengali

1. **Datta, Rachana.** Chalachchitra sahitya parichiti-o-Satyajit Ray krita chalachchitrabalir, 1955-75 mulyayan. University of Calcutta.

2. **Ghosh, Renupada.** Isvar Gupta samvadik, kavi-o-gadysilpa. University of Calcutta.

3. **Hajra, Nirendukumar.** Sanjib Chandra-o-Bangla sahitya. University of Calcutta.

4. **Mitra, Palaskumar.** Lalon Shah-o-Bangla sahitya. University of Calcutta.

5. **Saha, Adhis Chandra.** Debendranath Sen: Jibani kabyabichar. University of Burdwan.

6. **Sarkar, Rudrendu.** Rabindra kabye bastabata: Adiparber kabita theke balaka paryanta. University of Calcutta.

7. **Sinha, Dineschandra.** Purba banger kabial-o-kabigan. University of Calcutta.

Assamese

1. **Sabhapandit, Prabhat Chandra.** Socio-economic forces reflected in Assamese novels: 1940-75. Gauhati University.

Gujarati

1. Patel, Vishnubhai Khodabhai. Pannalal Patel: Ek adhyayan. Sardar Patel University.
2. Shastri, Vijaykumar Ramanlal. A study of form and technique of short story with reference to four short story writers. South Gujarat University.

Tamil

1. Krishnaswamy, K. A study of folk literature. University of Madras.
2. Raj, K.K. Sundara Sobitha. Flora of Bhakti period based on literature and inscriptions. University of Kerala.
3. Ramaswami, M. P.R.M. A critical study of Nakkirar and his works. University of Calicut.
4. Srinivasan, T. Spiritual quest in Nammalvar's Tiruvaimoli. University of Madras.

Kannada

1. Bhat, A. Srikrishna. Sataka sahitya in Kannada. University of Madras.
2. Pujar, V.G. Miracle stories in Veerasaiva literature. Gulbarga University.
3. Venkatrao, Mansur Sudha. Poet Mangarasa-III and his works. Karnatak University.

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1. Nirmalamma, D. A comparative study of folk-songs in Telugu and Tamil. University of Madras.
2. Sanjeevamma, P. A study of social consciousness in Telugu novel. Sri Krishnadevaraya University.
3. Sathyavathi, Mallisetty. Duryodhana of Andhra-Mahabharata. University of Madras.
4. Vasundhara, Manneru. Telugu caritraka navalavalokanamu. Nagarjuna University.
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3. Bhawsar, Jagdish Narayan. Madhya Pradesh mein swantantroyottar chitrakala ke vikas ka sameekshatmak adhyayan. Indira Kala Sangeet Vishwavidyalaya.
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5. Rege, Ranjna. Malwa Pradesh ke lok geeton mein nihit ragdari sangeet. University of Jabalpur.

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2. Bhatt, Chandrawati. Pithoragarh kee jan sankhya evam sansadhan: Ek bhaugolik vishleshan. Kumaun University.
3. Chand, Manjula. Water resources in Pithoragarh District. Kumaun University.
4. Dwivedi Madhu. Spatial variations of pollution in Jaipur environs. University of Rajasthan.
5. Nagarathinam, V. Geomorphology around Tirunelveli, Tirunelveli District. Tamil Nadu. University of Madras.
6. Pandey, Jagdamba Prasad. Faizabad Janpad mein jansankhya tatha khadya sansadhan. Kanpur University.
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1. Atam Parkash. The Deccan under the Rastrakutas. Kurukshetra University.
2. Deshpande, Mathura Madhukar. Iconography of Siva in Maharashtra from 3rd Cent. A.D. to 13th Cent A.D. Nagpur University.
3. Dutta, Sushil Chandra. The North-East and Mughals, 1661-1714 North Eastern Hill University.
4. Goel, H.L. Dadabhai Nauroji: Vyaktatv evam karya. University of Indore.
5. Kuppuram, G. Imperial Colas in Karnataka: A critical study A.D. 900—A.D. 1200. Karnatak University.
6. Mathur, Tej Kumar. Mewar nobility: Political and institutional study, 1750-1850 A.D. University of Rajasthan.
7. Mukhopadhyay, Somnath. Goddess Candi, a folk deity of Bengal. University of Calcutta.
8. Ramaswamy, Vijaya. The weaver communities in Medieval South India: A study of their socio-economic organisation. Jawaharlal Nehru University.
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11. Singh, Amrendra Kumar. Prachin Bharat mein Yaksh Kinner evam Digpal puja. Avadh University.
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Classified Advts.

(Continued from page 262)

service should apply through proper channel. Candidates called for interview will have to attend the same at their own cost.

The University reserves the right to fill-up or not to fill-up any post advertised and/or to call only selected candidates for interview.

J.P. Singhal
REGISTRAR

UNIVERSITY OF POONA

Ganeshkhind, Pune-7.

Applications in the prescribed form are invited for the following posts on or before **10.4.1982.**

Professors : Physics (1)
English Literature (1)
Mathematics (1)
Statistics (1)

Readers : Physics (2) Statistics (1). Sanskrit (1), Veda or Vyakarana (CASS-Temp. post) (1), Taxation Laws (1) Philosophy (1).

Lecturers : Physics (1), Journalism (1), Organic Chemistry (1), Zoology (1), Geography (1), Library Science (1).

All these posts are reserved for candidates belonging to Scheduled Castes, Scheduled Tribes and Nomadic Tribes and Vimukta Jatis. Other need not apply.

Scale of Pay

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.
Reader : Rs. 1200-50-1300-60-1900.
Lecturer : Rs. 700-40-1100-50-1600

Plus allowances admissible under University rules.

Upper age limit

Professors 50 years, Readers 45 years and Lecturers 35 years.

The prescribed set of application forms together with requisite details available on request accompanied by (1) a self addressed envelope (23 cm x 10 cm) bearing postal stamps worth **Rs. 1.25/** for the postage and (2) a postal order of **Rs. TEN** drawn in the name of Registrar. Separately for each post or personally on payment of **Rs. TEN** in cash in the University Office. The applicant asking for set of applications, must specify (i) the name and (ii) the serial number of the post he wants to apply.

Note : 1. Candidates belonging to reserved category should produce a caste certificate to that effect from the Magistrate/Notary; specifying clearly the name of the community to which he belongs.

2. One who is already employed must submit his application through proper channel.

3. Some of the conditions may be relaxed in the case of exceptionally capable candidate.

S.P. Bhosale
REGISTRAR

JAMIA MILLIA ISLAMIA

JAMIA NAGAR, NEW DELHI-110025
Advt No. 15/1981-82
Dated : 20.3.82

Applications on the prescribed form which can be had from the Registrar's Office on any day (except Sunday and Holiday) between 10.00 a.m. and 12.00 Noon or by sending a self addressed and stamped (35 paise) envelope of 10 x 23 cms. are invited along with the crossed Indian Postal Order or Bank Draft of **Rs. 3/- (Re. 1/-** for posts at Sl. No. 20 & 21) for the following posts so as to reach the Registrar by 1.00 p.m. on **24.4.1982.**

Ability to teach in Urdu and Hindi is a desirable qualification for teaching posts and knowledge of Urdu and Hindi is essential for non-teaching posts.

D.A., C.C.A., H.R.A., P.F., Gratuity, Pension and other benefits will be given according to Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of *the Selection Committee in* exceptional cases.

1. **Three Readers (Rs. 1200-1900) : one each in Arabic, Modern Indian History and Medieval Indian History (Permanent).**

Good academic record with a first or *high sacond class Master's* Degree of an Indian University or an equivalent foreign qualification. A Doctorate Degree or equivalent published work in the subject concerned, and independent published work of a high standard in addition to the published work *referred to* above *and at* least 5 years' experience of teaching Hons./Post-graduate classes or 10 years' experience of teaching undergraduate classes.

2. **Three Lecturers (Rs. 700-1600): one each in Islamic Studies, English and *Social Work* (Permanent).**
   - (a) A Doctor's degree or *research* work of an equally high standard; and,
   - (b) Consistently good academic record with Ist or high 2nd class Master's degree in a relevant subject or an equivalent degree of a foreign University.

Provided that if the Selection Committee is of the view that the research work of a candidate, as evident either from his thesis or from his published work, *is of very high* standard, it may relax any of qualifications prescribed above.

For the post of Lecturer in Islamic Studies the relevant subjects comprise, besides Islamic Studies, Muslim Philosophy, Comparative Religion, Religious *Studies* and *Islamic History and* Culture.

For the post of Lecturer in Social Work experience in teaching/training in Applied Social Sciences projects is a desirable qualification.

3. **Two Lecturers in Education (Rs. 700-1600) : one each in Physics and Economics (leave vacancies).**
   - (a) A Doctor's Degree in Education or research work of an equally high standard; and,
   - (b) *Consistently good academic* record with 1st or high 2nd class Master's degree in the relevant subject or an equivalent degree of a foreign University.

OR

   - (a) A Doctor's degree in the relevant subject or research work of an equally high standard; and
   - (b) Consistently good academic record with an M. Phil degree in Education or an equivalent degree of a foreign University.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed above.

4. **One Lecturer in Art Education (Rs. 700-1600) : Permanent.**

Essential : (i) At least high Second Class Higher Secondary or its *equivalent (2) At least high Second* Class Diploma in Fine Arts of 4 or 5 years duration from a recognised Art Institution or its equivalent.

Desirable : (1) At least two years of teaching experience. (2) At least high second class B.Ed. *(Art) or equivalent Professional* training. (3) Professional standing as an artist with one-man shows and participation in National and International exhibitions.

5. **One Lecturer in Civil Engineering (Rs. 700-1300) : Leave vacancy.**

At least second class Degree in Civil Engineering with two years teaching experience in some engineering Institute.

6 One Director. Jamia Nursery School (Rs. 440-750) : Permanent.

B.Sc. in Home Science, B.Ed. with *experience in teaching and administration.*

OR

B.Sc. in Child Development, B.Ed. with experience in teaching and administration.

OR

B.A., B.Ed. with Diploma in Nursery Training and experience in teaching and administration.

7. **Two Instructors (Rs. 440-750) : One each in Batik and Metal Craft (Permanent).**

Essential : *A first or high second* class Diploma in Art or Craft in the particular craft of a recognised Institute.

Desirable : (1) Experience of work in the particular craft **at** a *Professional level.* **(2) High** School or its equivalent. (3) Working knowledge of Hindi/Urdu.

8. **One Instructor in Dramatics (Rs. 440-750)—Permanent.**

Essential : (1) At least Second Division Higher Secondary. (2) Certificate Course in Theatre Workshop. (3) Two years experience as a Staff Artist, Director, Organizer and Producer of any registered drama organization/society. (4) Experience of Play—writing.

Desirable : Some teaching experience in dramatics in a School/College.

9. ***One T.G.T. in Agriculture* (Rs. 440-750) : temporary likely to be made permanent.**

Essential : (1) At least second class degree of a recognised University in the subject concerned.

(2) A University degree/diploma in teaching.

Desirable : At least two years experience in teaching Middle/High classes of a High/Hr. Sec. School.

10. **One Sports Coach (Rs. 440-750) : leave vacancy.**

Certificate from National Institute of Sports, Patiala or from other recognised Physical Education Institutions.

11. **One T.G.T. in Science (Physics) (Rs. 440-750) : Temporary.**

Essential

   - (i) B.Sc. (Hons.) in Physics or B.Sc. (Pass) in Physics, Chemistry and Maths., with at least IInd Division.
   - (ii) B.Ed. in IInd Division.
   - (iii) Certificates in Special Education (Teaching of handicapped *children preferably, the mentally* retarded and the orthopaedically handicapped.
   - (iv) Knowledge of Urdu.

Desirable

   - (i) Command over English Language.
   - (ii) Keen interest in co-curricular activities and proficiency in such activities which may be *useful for the handicapped* children.

12. **One Research Assistant (Social Work) Rs. 425-640 (Permanent).**

(1) A second class Master's degree in Social Work. (2) At least one year's research experience in social surveys, field studies and opinion and attitude studies. (3) Adequate knowledge of Urdu and Hindi.

13. **One Research Assistant *(Sociology)*, Rs. 425-700, (Permanent)**

(1) A second class Master's degree or equivalent in Sociology from a

recognised University. (2) Experience in and demonstrated ability for conducting social research, including quantitative techniques. (3) Adequate knowledge of Urdu and Hindi.

14. **One Jr. Engineer (Civil) Rs. 425-700. (Permanent)**
    (1) Certificate of 3 years' Diploma in Civil Engineering from the recognised Institution.
    (2) Minimum two years field experience.
    (3) Working knowledge of Urdu, Hindi and English essential.
15. **One Lady P.T.I. (Rs. 425-640) : Permanent**
    Matric with certificate in physical training.
16. **One Conservation Assistant (Rs. 380-560) : Permanent.**
    Essential : B.A. and Certificate in Library Science with experience of preserving documents and knowledge of typing. Knowledge of Urdu and Hindi essential.
    Desirable : Certificate of short term course of preservation of books, manuscripts and archives from the National Archives.
17. **Two Compounders (Rs. 330-560) : one permanent and one leave vacancy.**
    (a) Matriculation or its equivalent.
    (b) Must have passed the Pharmacists (Compounder's) Course from a recognised Institution and must be a registered pharmacist as required under the Pharmacy Act—1948.
    (c) Two years experience in a hospital.
    (d) Adequate knowledge of Urdu and Hindi.
18. **One Trained Nursery School Teacher (Rs. 330-560) Permanent.**
    Higher Secondary Trained with at least *one* year's experience.
19. **Two Steno-typists (English) (Rs. 330-560) one permanent and one temporary.**
    Matriculate with proficiency in typing with a speed of about 35 w.p.m. and proficiency in Shorthand with a speed of about 80 w.p.m.
20. **Two Governess (Rs. 210-270) : permanent.**
    Matriculate.
21. **Lab. Attendant (Rs. 210-270) : Permanent (Physics Deptt.)**
    Matriculation or an equivalent examination with Science subjects.
    Desirable
    Should have worked in a laboratory for at least six months.

Note :- 12.5% non-teaching posts shall be filled from amongst members of the Scheduled Castes and 5% from amongst the members of the Scheduled Tribes.

Ikram Husain Khan
REGISTRAR

Indian school of Mines

DHANBAD - 826004

No. 615120/82 **Dated: March 15, 1982**

MAKE-UP ADMISSIONS IN UNDERGRADUATE ENGINEERING PROGRAMME

Indian School of Mines, deemed to be a university under the UGC Act, invites applications for a Special Entrance Examinations to be held on 15th and 16th May 1982 (at Centres to be notified later) for *direct admission* to III Semester and VII Semester of its B Tech Programme* (in *Pet Engg, Min Engg and Mining Machinery*), to make up the shortfall in the sanctioned intakes.

ELIGIBILITY

Purpose (with likely number of available seats)	Educational Qualification	Age limit	Experience
(a) For Admission to III Semester of 4-Year Course			
Mining Engg : 13 seats	Pass in the Institution of Engineers Studentship Examination OR B.Sc. with Physics, Chemistry & Mathematics.	(All disciplines) Age not exceeding 23 years (in case of Petroleum Engg 22 years) as on 1-10-82.	One year in Mining, Petroleum industry.
Mining Machinery : 13 seats.	As above		As above
Petroleum Engg : 12 seats.	As above		As above
(b) For Admission to VII Semester of 5-Year Programme			
Mining Machinery : 16 seats	Diploma in Elec or Mech Engg. with pass in Section A of AMIE Examination.	Age not exceeding 24 years and in case of Pet Engg 23 yrs as on 1-10-82.	One year's experience in Mining industry.
Petroleum Engg : 2 seats.	As above.		One year's experience in Petroleum Exploration and Production.

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* Another 25 seats might become available for a new B Tech programme in Mineral Beneficiation that might be offered with effect from the current session. For admission to VII Semester of this discipline, a diploma in Mech/Chem/Met Engg (with pass in Section A of AMIE Examination) would be required.

GENERAL

Some of these make-up seats may be reserved for Scheduled Caste and Scheduled Tribe candidates also.

LAST DATE FOR ISSUE OF FORM : **15th April 1982.**

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS : **19th April 1982.**

No reasons whatsoever shall considered valid for late submission of the completed form.

Detailed information and applications forms (Form 'X' for admission to III Semester and 'Y' for admission to VII Semester) can be had from the office of the undersigned either in person or by post, on remitting a crossed postal order for **Rs.** 5/- payable to Registrar, Indian School of Mines, Dhanbad.

Candidates should clearly specify in their request (X or Y) that the Form they require. A self-addressed unstamped envelope of size 23cm × 10 cm may also be sent along with the request.

S. P. Varma
REGISTRAR

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

Administrative Office: Rajendranagar
Hyderabad-500030

Advertisement No. 1/82 Dated 8.3.1982

Applications in the prescribed form together with a registration fee of **Rs. 5/-** are invited for the undermentioned post in the Andhra Pradesh Agricultural University so as to reach the undersigned on or before 9-4-1982.

DIRECTOR OF EXTENSION

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500 and special pay of Rs. 250/- in addition to usual allowances admissible as per University Rules.

Qualifications

Essential : (i) Ph.D. degree in any *branch of Agril. Science*/Veterinary Science/Home Science, or other equivalent degree or other *published* work *of an* equally high standard;

(ii) A minimum of 10 years experience in Research, *Teaching, Extension* and Administration of which atleast five years should be in the field of extension work. *Proof of* experience in research and extension work to credit.

(iii) Reputation for initiative, *leadership and ability* to organise, coordinate and superwise the activities and work of others.

NOTE : Candidates should have a minimum age of 40 years. Preference will be given to those having high academic qualifications and outstanding achievements and those who possess basic degree in Agricultural Science/Veterinary Science/Home Science.

2. The term of appointment shall be for a period of three years extendable for another term of the same duration.

3. Persons already in service must submit their applications through their employers, sending an advance copy direct.

4. Application forms can be had from the Registrar, Andhra Pradesh Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500 030 on remitting **Rs. 2/-** in person or Rs. **5/-** uncrossed Postal Order for obtaining it by post.

5. Applicants should be prepared to appear for personal interview at their own cost unless specially exempted. **It is open to the University to fill or not to fill the** post now advertised.

V. Gopalakrishna
REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

CORRIGENDUM TO ADVERTISEMENT NO. 1/82

Posts of Assistant Scientists (Horticulture) at **Sr.** No. 79 of the Advertisement No. 1/82 are withdrawn.

REGISTRAR

VIKRAM UNIVERSITY

UJJAIN

No. Admn /Estt./SST/82/32616
Dated : 22/3/1982
Advertisement

Applications on the prescribed form, available from the University Office on payment of **Rs. 10/-** in cash or by M.O./I.P.O. payable to the Registrar, are inivited for the following posts in the University Schools of Studies, Department of Library Science, Madhav College and Madhav Science College :

A. (1) **Professor one each** in School of Studies in Political Science, Economics, Chemistry, Mathematics, Zoology and Commerce.
Specialisation
Zoology : Fish and Fisheries (Compulsory)
Commerce : Management Studies (desired)

(2) **Readers one each** in Political *Science, Economics*, Chemistry, Mathematics and Statistics, Botany.
Specialisation
Chemistry : *Industrial Chemistry* (compulsory)
Statistics : Computer Sciences (compulsory)

(3) **Lecturers one each** *in Political* Science, Zoology, Mathematics and 2 (Two) in Library Science : one of which is purely temporary.
Specialization
(1) **Mathematics**: Astronomy (compulsory)
Zoology : Cytogenetics/Parasitology/*or Physiology* (compulsory)

B. MADHAV COLLEGE, UJJAIN

(1) **Professor one each** in Urdu, Geography, Commerce and Law.

(2) **Lecturers**—Four in Commerce and one in Law.

C. MADHAV VIGYAN MAHAVIDYALAYA UJJAIN

(1) **Lecturers** : One each in Geology, Statistics and Geography.

PAY-SCALE FOR 'A'

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.
Reader : Rs. 1200-50-1300-60-1900.
Lecturer : Rs. 700-40-1100-50-1600.

PAY-SCALE FOR 'B & C'

Professor : Rs. 1200-50-1300-60-1900.
Lecturer: *700-40-1100-50-1300-Assessment-50-1600.*

Qualifications : More or less as laid *down by the University Grants Commission*. The *details* of which are given in the annexure to the prescribed application form.

All appointments at 'A' will be on probation for two years in the first instance except on the posts indicated as temporary. In addition to pay, the above scales carry dearness allowance, additional dearness allowance, at *M.P.* Government rates and the benefit of contributory provident fund (after confirmation) as per rules of the University in force from time to time. *Higher* start is possible to deserving candidates.

The posts in **'B&C'** are temporary but likely *to* be continued. **Scheduled** Castes and Scheduled *Tribes* candidates will be given preference, if found suitable.

Applications complete in all respect and accompanied with Crossed I.P.O. for **Rs. 10/-** payable to the Registrar, Vikram University, Ujjain should reach the undersigned on or before **26.4.1982,** *Scheduled Castes* and *Scheduled Tribes* candidates are not required to pay this fees if they submit a certificate to this effect from District Collector/Tehsildar of the concerning region. The envelope containing application form should be marked "Application for the post of Professor/Reader/Lecturer……………………separate application form is essential for each post.

Applications received after the last date or not on the prescribed form or without the prescribed fee *will* not be considered. Candidates already in

(*Continued on page 259*)

COMMON ENTRANCE EXAMINATION FOR B.E./B.TECH./B.ARCH. ADMISSIONS 1982-'83 TO THE ENGINEERING COLLEGES IN ANDHRA PRADESH

Andhra University, Waltair will conduct a *Common Entrance Examination* on behalf of (i) Andhra University, (ii) Jawaharlal Nehru Technological University, (iii) Kakatiya University, (iv) Osmania University, (v) Regional Engineering College, Warangal (including Andhra Pradesh quota of seats in other Regional Engineering Colleges) and (vi) Sri Venkateswara University for admission to the First Year of the 4-year B.E./B. Tech. (a) Civil (b) Chemical (c) Electrical/Electrical and Electronics (d) Electronics and Communication (e) Mechanical (f) Mechanical Marine (g) Metallurgy (h) Mining (i) Computer Engineering Courses etc., and 5-year B. Arch. Course in their respective Colleges/Institutions for the Academic year 1982-83.

(1) Application form, Instructions to candidates, etc., can be had on payment of Rs. 5/- through CROSSED BANK DRAFT ONLY drawn in favour of Convener, Common Entrance Examination Committee, College of Engineering, Andhra University, Waltair, payable at State Bank of India, Andhra University Engineering College, WALTAIR, (Bank Code No. 3170) from any one of the following, in person or by post by enclosing a self-addressed stamped (Re. 1.25) envelope of 30 cm x 20 cm size.

1. The Principal, College of Engineering, Andhra University, Waltair-530 003.
2. Principal, College of Engineering, Kakinada—533 003.
3. Principal, College of Engineering, S V. University, Tirupati-517 502.
4. Principal, College of Engineering, Anantapur-515 002.
5. Principal, Nagarjunasagar Engineering College, Hyderabad-500 488.
6. Principal, College of Fine Arts & Architecture, Hyderabad-500 488.
7. Principal, College of Engineering, Osmania University, Hyderabad-500 007.
8. Principal, College of Technology, Osmania University, Hyderabad-500 007.
9. Principal, Regional Engineering College, Warangal-506 004.
10. Convener, Common Entrance Examination Committee, College of Engineering, Andhra University, Waltair-530 003.

2. **ELIGIBILITY FOR APPEARING FOR THE ENTRANCE EXAMINATION.**

Candidates of Indian Nationality who have already passed or are appearing for the following examinations during April, 1982 are eligible :

2 Year Intermediate Exam (10+2 stage) with M.P.C. as Optionals conducted by the Board of Intermediate Education, A.P.

OR

2 Year Intermediate with Vocational Courses in Engineering & Technology held by the Board of Intermediate Education, Andhra Pradesh.

OR

Diploma in Engineering/Architecture conducted by the State Board of Technical Education and Training, Andhra Pradesh.

OR

Any other examination recognised by the respective Universities equivalent to any of the above examinations.

NOTE : Candidates seeking admission to the affiliated Engineering Colleges in the State, for which the Universities concerned have stipulated that the candidates should qualify in the Common Entrance Examination should also appear for the Entrance Examination.

Sale of Application form commences on	...15th March, 1982
Last date for sale of applications	...24th April, 1982
Last Date for receipt of filled in application from either by post or in person.	5.00 p.m. ...24th April, 1982
DATE OF COMMON ENTRANCE EXAMINATION	...SUNDAY, 6th JUNE, 1982 10.00 a.m to 1.00 p m

4. Further particulars can be had from the "Instructions to the Candidates" supplied along with the application form.
5. All Correspondence regarding Common Entrance Examination shall be addressed to :

CONVENER,
COMMON ENTRANCE EXAMINATION COMMITTEE,
COLLEGE OF ENGINEERING,
ANDHRA UNIVERSITY, WALTAIR,
VISAKHAPATNAM-530 003.

V. Subba Rao
CONVENER
COMMON ENTRANCE EXAMINATION COMMITTEE

SCHOOL OF PLANNING AND ARCHITECTURE
NEW DELHI-110002

Last Date of Receipt of *Applications* : 15.4.82

Applications are invited from the citizens of India in the prescribed form obtainable from the School alongwith crossed Indian Postal Order for Rs. 5/- **(Re 1.25 in case of S.C./S.T. *candidates*)** (non refundable) as application fee in favour of School of Planning and Architecture, New Delhi-110002 for the following posts.

1. Professors

(Rs. 1500- 60- 1800- 100- 2000- 125/2-2500) in the following areas :

Transport Planning (Lien vacancy), Sociology, Architecture (Lien vacancy), Urban Design, Landscape Architecture and Planning.

Age Limit: Below 50 years.

2. Assistant Professors

(Rs. 1200-50-1300-60-1900) in the following areas :

Planning (3 posts including 2 lien vacancies), Landscape Architecture (2 posts), Architecture, Urban Design and Housing.

Age Limit : Below 40 years.

3. Lecturers

(Rs. 700-40-1100-50-1600) in the following areas :

Transport Planning, Landscape Architecture, Civil Engineering (2 posts), Architecture and Urban Design.

Age Limit : *Below 35 years.*

Preference for the posts of Lecturer will be given to S.C./S.T. Candidates.

Application forms and other particulars including qualifications may be obtained well before the due date either personally or on written request accompanied by a self-addressed unstamped envelope of 23 cms x 12 cms size from the Registrar, School of Planning and Architecture, 4, *Block-B*, Indraprastha Estate, New Delhi-110002. Applications received after the last date i.e. **15.4.82** or incomplete applications will be rejected.

Y.P. Singh
REGISTRAR

UNIVERSITY NEWS, APRIL 1, 1982. Regd. No. R.N. 7180/63 Postal Regd. No. D(C)-53

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA

P.O. MOHANPUR, DIST. NADIA, WEST BENGAL

Advertisement No. APPTT/NT-2/82

Applications are invited for the following posts in the scales plus other allowances as admissible under the rules of the Viswavidyalaya and with the qualifications mentioned below:

1. REGISTRAR

Scale of Pay : Rs. 1500- 60- 1800-100- 2000-125/2- 2500/-

Qualifications (a) Essential

(i) Uniformly good academic record with B+Master's Degree or its equivalent; (ii) At least ten years' administrative experience in Academic Institutions like University or in an Institute of higher learning of which 5 years' must be in high level administration in a University or in an Institute of Post graduate Study. (iii) Age not less than 40 years; relaxable in case exceptionally qualified candidate.

(b) Desirable

(i) A Doctorate Degree or published research work of merit; or High Level administrative experience in a Government or a quasi-Government organisation or a good background in administrative and management in senior position.

Provided that in absence of suitable candidate having requisite administrative experience if the candidate has been either a Professor/Reader/Principal for at least two years, the essential qualification pertaining to administrative experience for the post may be relaxed and for candidates having requisite administrative experienee the essential academic qualifications may be relaxed on the recommendation of the Selection committee but the selected candidate must have at least the academic qualification for the teachers of colleges.

2. COMPTROLLER

Scale of Pay : Rs. 1500-60-1800-100- 2000- 125/2- 2500.

Qualification : Essential

(i) A good academic record with Master's Degree or its equivalent professional qualification; (ii) Membership of the Institute of Chartered Accountants/Cost Accountants of India or Experience in I.A.A.S. or equivalent service.

Or

A Master's degree in Business Administration with specialisation in Finance.

In case of candidate holding qualification as in item (ii), the requirement of M.A. degree may be waived.

(iii) Preference will be given to Master's Degree in Commerce.

(iv) At least 10 years' experience in a Government office or in a University or in an Institute of higher learning in a high administrative post involving supervision, control, planning and Audit.

(v) Age not less than 40 years. Relaxable in case of exceptionally qualified candidates. Candidates applied vide NT-1/81, need not apply again.

3. ASSISTANT REGISTRAR : Two posts

Scale of Pay : Rs. 700-40- 1100- 50-1600/-

Qualification : Essential (a)

(i) Uniformly good academic record with B+Master's Degree or its equivalent; (ii) At least five years' experience in a Supervisory capacity in a University or a Research Institute or a Government/ Quasi-Government organisation (iii) Age not below 30 years. Relaxable in case of exceptionally qualified candidates.

(b) Desirable

A Degree in Business Management or Law Statistics or Planning.

Provided that Master's Degree may be relaxed in the case of candidates possessing Uniformly good academic record with at least 5 years' experience as Superintendent or in equivalent post in a University. In that case the performance record of such candidates for five years will also be examined

Provided that the candidates who have applied in response to Advertisement No. APPTT/4/81 need not apply again.

4. ASSISTANT LIBRARIAN: One post

Scale of Pay: Rs. 700-40-1100-50-1600/-.

Qualification : Essential

Uniformly good academic record with B+Master's Degree with Bachelor's Degree in Library Science or a Masters' Degree in Library Science. (ii) Age not below 30 years. Relaxable in the case of exceptionally qualified candidates.

(b) Desirable

At least five years' experience in a recognised Library preferable in a University or in an Institute of higher learning.

Note I : For the posts at Sl. 3, Sl. 4.

Provided that in case of employees of the Viswavidyalaya who are otherwise found suitable, the prescribed academic qualification may be reduced or waived on the recommendation of the Selection Committee.

5. LAW ASSISTANT (Temporary—One post.)

Scale of Pay

Rs. 600- 35- 670- 40- 870-45-1050-50-1250/-

Qualification ; Essential

(i) A Law Graduate (50% marks in Law Exam.) with good academic record (ii) Desirable : Training of at least one year under a practising Advocate of Calcutta High Court or self-practice in any law court of West Bengal; (iii) Age not more than 35 years. (iv) The candidates who have applied earlier in response to Advertisement No. APPTT/NT-1/81, need not apply again.

6. TECHNICAL ASSISTANT III—One post in the department of Animal Nutrition in the scale of Rs. 450-25-625-30-805-35 910-45-1000/-

Qualification : Essential

A degree in Biological Sciences with Chemistry as one of the subjects.

Age : Not more than 30 years.

Note II : Age for all the categories should be calculated on **1.1.1982.**

Experience and Age limits may be relaxed on the recommendations of the Selection Committee in the case of candidates otherwise qualified. A higher initial pay in the scale may be granted on the basis of qualification, experiences and present emoluments.

Applications must be submitted in the prescribed form obtainable from the office of the Registrar, Bidhan Chandra Krishi Viswavidyalaya, P.O. Mohanpur, Dist. Nadia, West Bengal by **remitting crossed Indian Postal Order** for **Rs. 8.00 (Eight)** for categories at Sl. 1 to Sl. 4 and Rs. **3.00 (Three)** for categories at Sl. 5 and Sl. 6 in favour of the **'Bidhan Chandra Krishi Viswavidyalaya'** between **11-30 A.M.** and **4 00 P.M.** on full working days and between **11-30 A.M.** and **1.00 P.M.** on Saturdays.

Application forms may also be obtained by post by sending a self-addressed envelope stamped **Re. 0.65 (sixty five paise)** and the necessary Postal Order.

Persons already in employment should apply through proper channel.

Applications form completed in all respects should be submitted to the undersigned in an envelope superscribed with the name of the post applied for by the **30th April, 1982**

Candidates called for interview should appear at their own cost.

REGISTRAR

INDIRA KALA SANGIT VISHWAVIDYALAYA

KHAIRAGARH (M.P.)

APPLICATIONS are invited for the following posts in the University Teaching Departments, THREE LECTURERS (One each for Tabla, Painting & Sanskrit) **Scale : Rs.** 700-40 1100-50-1300-Assessment-50-1600, ONE ACCOMPANIST (SARANGI) **Scale** Rs. 280-10-350-12½-400-EB-20-480 and ONE TECHNICIAN (Audio-Visual) **Scale** : Rs. 246-6-270-10-350-EB-12½-400-20-460.

The University reserves the right to :-(i) relax any of the prescribed qualifications in the case of Technician and Accompanist if otherwise found exceptionally competent. (ii) keep vacant any of the advertised posts without assigning reasons. All posts are reserved for Scheduled Tribes and Scheduled Caste. But if suitable candidates are not available, selection will be made from unreserved category.

Posts are permanent and carry CPF benefits and DA ADA at University rates. Appointments will be on probation according to University Rules. Retirement age 60 years.

Details of qualifications, other relevant information and the Application Forms (in four copies) obtainable from the Registrar by sending self addressed **Rs. 1.55** stamped envelope of 25 x 12 cms. Last date for receipt of duly completed Application Forms (in four copies) is **25th April, 1982**. Application Fees for the post of Lecturers **Rs. 5/-** and for other **Rs. 3/-**. For Scheduled Caste and Scheduled Tribes candidates the fee shall be one-fourth of prescribed rates.

D.K. Ghosh
REGISTRAR

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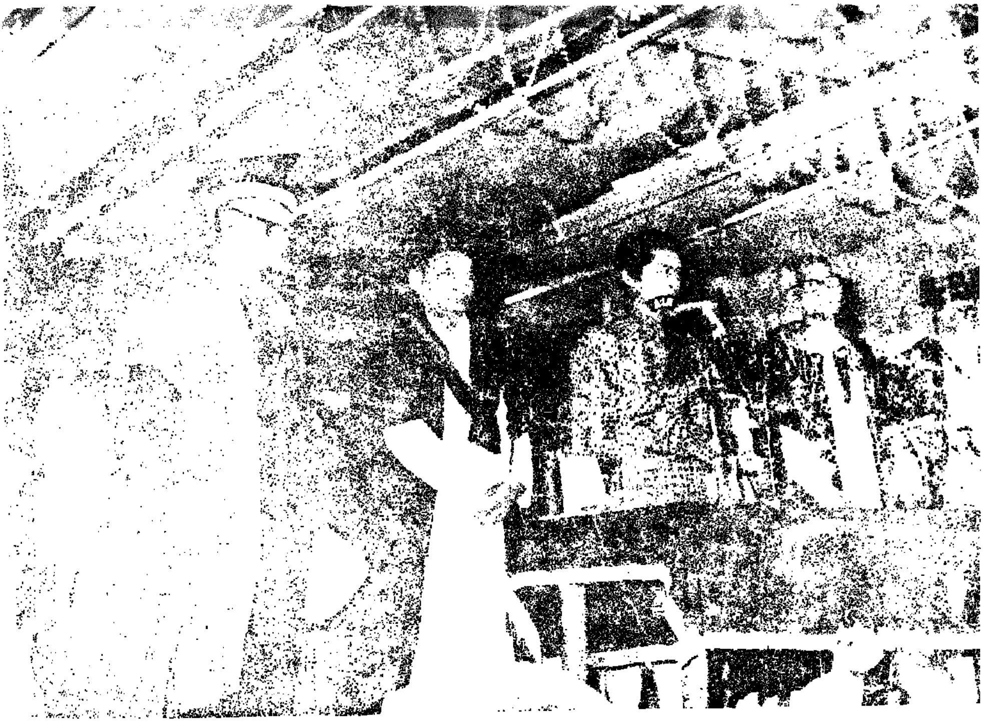
University

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH APRIL 15, 1982



His Majesty Jigme Singye Wangchuck, King of Bhutan, (third from right), at the convocation of Nagarjuna University, where he delivered the convocation address.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF DELHI

Advt. No. Estab IV/73/82 **Dated, the 7th April, 1982**

Applications on the prescribed forms are invited for the following posts:

Department	**Designation**
Zoology	Three Technical Assistants (One each reserved for Scheduled Caste, Ex-Serviceman and Scheduled Tribe). **Note:** Candidates of General category can also apply against the posts reserved for Scheduled Caste and Ex-Serviceman, but they will be considered only if no candidate belonging to these reserved categories is found suitable.
Garden Committee	Five Malies Unreserved : 3 Scheduled Caste : 1 Ex-serviceman : 1
W.U.S. Health Centre	(i) One Pharmacist (Reserved for S/C) **Note:** Candidates of General Category would also be eligible to apply for this post. However their candidature would be considered only if no Scheduled Caste candidate is found suitable for the post. (ii) One X-Ray Technician (Part-time)
Geology	Two Laboratory Attendants (One reserved for Ex-serviceman)
Education	One Audio-Visual Assistant
Graphic Arts Centre (University Press)	Two Machine Operators (One each for Offset and Microfilming; one each reserved for Scheduled Caste and Ex-serviceman).
History	One Curator (Museum)
Delhi University Library System	One Transcriber

The scales of pay of the posts are:

Technical Assistant/Curator (Museum)	Rs. 425-15-500-EB-15-560-20-700
Mali	Rs. 196-3-220-EB-3-232
Pharmacist	Rs. 330-10-380-EB-12-500-EB-15-560
Part-time X-Ray Technician	Rs. 100/-- p.m. (fixed)
Laboratory Attendant	Rs. 210-4-250-EB-5-270
Audio-Visual Assistant	Rs. 425-15-530-EB-15-560-20-600
Machine Operator/Transcriber	Rs. 260-6-290-EB-6-326-8-366-EB-8-390-10-400

All posts, except Part-time X-Ray Technician, carry D.A., C.C.A. and H.R.A. as admissible under the rules in force in the University from time to time.

Essential Qualifications

Technical Assistant

Graduate in Science. Experience in Laboratory Techniques of the subject.

Mali

Elementary knowledge of Gardening. Must be conversant with Gardening operations/Machines.

Pharmacist

Must have passed the Pharmacists (Compounder) course from a recognised institution and must be a registered Pharmacist.

X-Ray Technician (Part-Time)

Graduate with Diploma in Radiography. Two years experience as Radiographer in a General Hospital.

Laboratory Attendant

Should have passed matriculation or an equivalent examination with Science subjects.

Audio-Visual Assistant

(i) Matriculation.

(ii) Licence certificate to operate cinematograph equipment in Delhi Cinematography Rules.

Machine Operator (Offset)

(a) Proficiency in running of Offset Machines—Rotaprint/Romayor/Multilith;

(b) Able to do day-to-day maintenance of the Offset Machines;

(c) Three years experience in the trade;

(d) Education: Middle Standard.

Machine Operator (Micro-filming)

(a) Ability of handling microfilm and or Microfiche Camera;

(b) Day-to-day maintenance of Camera;

(c) Education: Middle Standard;

(d) Experience: 3 years in Microfilm and Microfiche work.

Curator (Museum)

A good 2nd class M.A. Degree in Ancient Indian History and Culture (with specialisation in Fine Arts) or Archaeology with considerable field experience in Archaeology.

Transcriber

(i) Higher Secondary Senior Secondary School Certificate (10 + 2).

(ii) Knowledge of both Bharati & English Braille.

Desirable Qualifications

Pharmacist

Two years experience in the profession.

Laboratory Attendant :

Should have worked in a laboratory.

Audio-Visual Assistant

Some training in the use of Audio Visual equipment.

Curator (Museum)

Ability to undertake independent field work, photography and drawing work.

The prescribed application form can be had from the Information Section of the University either personally or by sending a self addressed envelope (size 13 cm x 28 cm) with postage stamps worth **Rs 3.10p**.

The candidates will have to produce the *original documents relating to their* age, qualifications, experience, etc. at the time of interview.

Applications **(separate for each post)** accompanied by attested copies of Degrees, other certificates, marksheets, etc. should be sent to the Registrar, University of Delhi.

The last date prescribed for receipt of the applications is **10th May, 1982.**

Note

1. Canvassing in any form by or on behalf of the candidates will disqualify.
2. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

REGISTRAR

AMERICAN STUDIES RESEARCH CENTRE

HYDERABAD-500 007

Applications are invited for the position of

ACADEMIC ASSOCIATE

(American Literature)

To act as an adviser to ASRC scholars, to aid in the editing of ASRC publications, to work as a subject specialist in developing the library collection, to coordinate the Centre's conference and lecture program and the ASRC scholarship program.

Qualifications: Must have a Ph.D. in American literature, demonstrated ability as a research scholar, and minimum five years' experience in research guidance, editorial work and postgraduate teaching. Highest proficiency in oral and written English is absolutely required.

Scale: Rs 1500-60-1800-100-2000-125/2-2500.

Selected candidate will be on contract for two years, renewable for another term.

Candidates called for interview will be paid first-class roundtrip train fare and be given local accommodation.

Application giving full particulars should be sent through proper channel on or before **30 April 1982.**

DIRECTOR

UNIVERSITY NEWS

VOL. XX **APRIL 15**
No. 8 **1982**

A Fortnightly Chronicle of Higher Education **Price Re. 1.25**

IN THIS ISSUE

Faculty Development and Education 269
Integrated Studies of the Western Ghats Region 270

Campus News

National symposium on botanical research at Patna 273
NAMS/NBE workshop on MNAMS medicine paper part II 273
3-year degree courses for UP varsities 274
Patna to have new campus for PG departments 274
PU's seminar on literature 275
OU seminar on library and communication 275
Meditation for better performance 276

Agriculture

Summer institutes in agriculture 277
New variety of rice 277
Dryland farming 278
Pantnagar releases new maize variety 278

News from Abroad

New technique for recycling refuse 279
Conference on early devotional literature in new Indo-Aryan languages 279

Conferences, Congresses and Seminars 280
Research in Progress 290
Theses of the Month 291
Additions to AIU library 297
Classified Advertisements 298

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : **M.S. Ramamurthy**

Examination Reform : Some Perceptions

G. B. Shah*

Somehow examination reform movement in India is not getting sufficient momentum. It seems that the reasons are to be located within ourselves rather than looking for some extrinsic factors which nevertheless are not less important. Decision making in education has somehow remained a downward filtration process, whereby innovations, ideas, decisions and even fantasies ooze through the layers of bureaucratic structure from the top down below. Examination Reform as a movement is no exception. Somehow one gets an impression that it has not become an organic component of an educational system but has developed as an additional output parameter outside the institutional structure of higher education. This is not what we want. We want that examination reform as an innovation should be a part of the life of a university so much so that it ceases to be an innovation in due course. The fact that this is not happening in our universities is most distressing but incredibly real.

The University Grants Commission has done utmost for qualitative improvement of education by injecting reforms into the system of examination. Establishment of the Examination Reform Units in some Universities is an outcome of such an endeavour.

The measures to reform examinations in Indian universities, could broadly be classified as under:

a) Question Bank
b) Internal Assessment
c) Grading System, and
d) Semester System

Experience has shown that question banking has so far remained the most non-controversial and relatively most acceptable innovation in our Universities. Internal assessment has evoked mixed response from the teaching-learning community. Quite a good mumber of Universities have gone to the extent of twenty to twenty-five per cent internal marking. My assessment is that the present climate does allow to go upto the extent of twenty-five to fifty per cent weightage for continuous internal assessment by the teacher concerned. The task before us is to see that this weightage continues to increase gradually and consistently so that one day we may reach a position where the final examination at the end of the year/semester loses its 'finality' and get reduced to one of the tests to be held periodically. I envision that such a practice would create a climate where examination reform would eventually merge with curricular reform. In other words, examination reform should be taken as a means to achieve the end of curricular reform. Let us realize that examination reform *per*

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se would not be worth going for, and given a choice, it would be less dangerous to go for curricular reform without examination reform rather than going the other way round.

Examination Reform in India is a complex phenomenon and nothing much could be expected from such well-conceived but sporadic attempts. What is required is a sound conviction on the part of the teaching community of the University. Teahers should develop certain basic convictions such as the following:

(a) Examination is but a culmination of the learning process and, therefore, should be regarded as a part of the game rather than an activity outside the process of learning.

(b) Hundred per cent internal assessment should be regarded as the birth right of the teacher.

(c) Semesterization is much more than splitting the existing courses into two halves. It implies:

  (*i*) freedom on the part of teachers, to formulate and revise courses from time to time;

  (*ii*) freedom on the part of teachers, to decide the content and the mode of examination;

  (*iii*) hundred per cent internal assesssment;

  (*iv*) freedom, on the part of students, to select suitable courses from a good number of courses offered; and

  (*v*) freedom on the part of students, to earn the credits for various courses under a reasonable flexible schedule.

The above listed convictions do sound rhetoric. They need not. Take for example, hundred per cent internal assessment. Andhra University, Waltair is having such a practice for the last five to six years. Semester System is being followed in some Indian Universities as also in most of the Western Universities.

It is desirable that the Colleges and the Post-graduate Departements try out certain innovations even within the framework of limited percentage of internal assessment. It is here that teachers should take freedom to have their own system for granted. They can have either a viva-voce or an Open Book Test, if they so desire. It would be interesting to note here that one of the Post-graduate Departments of South Gujarat University, Surat, placed for students the following notice for an Open Book Test:

- Please bring as many books as possible
- Bring notes if you have
- Enjoy the fun of taking examinations free from parrot learning
- No supervision, please! We trust you, friends!

Such innovations do require creative imagination and bold initiative on the part of teachers. It also requires certain amount of risk-taking behaviour in addition to the tremendous faith in goodness of our students. One thing is certain and that is : our students do appreciate such innovations if they are taken into confidence beforehand.

In view of our experiences during the last two decades, it would be worthwhile to keep in view the following suggestions before any University decides to reform the examinations.

(1) Let a proposed reform in the examination system be discussed threadbare in the general body meeting of the Union of teachers. Experience has shown that a complete alienation between an innovation and the practitioners is the surest way to prepare for a descent burial of an innovation.

(2) It would be a good idea to create a climate for the reforms by calling a series of meetings with the student bodies. It should be remembered that in the ultimate analysis every reform in the examination system affects community straightaway.

(3) The non-teaching staff of the University should be sufficiently oriented to implement the reforms. Sometimes it so happens that a well-conceived and a well-intentioned innovation gets lost in a jungle of bureaucracy. In our Universities the non-teaching community sometimes holds the key to success or otherwise of an innovation.

(4) It is better to take stock of the progress of a reform periodically. Some reforms die a natural death because the gains are not consolidated, while some die a premature death because the practitioners remain eyewitnesses to the fatal academic accidents on the campus.

(5) A University, being a laboratory for new thoughts, should never feel sorry for 'honest failures' after trying out an innovation. Such failures contribute more to the development of a University than a serendipitious success.

Before I conclude, I would like to say a few words about the need to improve the question papers. As I mentioned earlier, this is something which is least resisted. Every good teacher will support the view that a good question paper is a pre-condition for dependable assessment of a student's performance in any subject. It is also a fact that without good question papers the process of bringing desirable changes in the present system of examination will remain imcomplete. Our question papers need modifications on many fronts. Setting a good question paper requires a good deal of time, thinking and training on the part of a paper-setter. It cannot be and should not be done in a frantic hurry as it is the mainstay of the programme of examination. It should be a well thought out process rather than a hasty end-product of a job done without much deliberation. One requires some tools of assessment for the purpose of any examination. These tools may be in the form of observation, interview, oral test, appraisal instrument, written question papers, etc. A written question paper is one of the important tools (if not the tool) of measuring the achievement of students in a subject.

Years ago the University Grants Commission in one of its reports on Examination Reform had given three valuable suggestions with reference to

(*Continued on page 272*)

Faculty Development and Education

Atma Ram*

The University Grants Commission has launched several schemes like institutonic of teacher's fellowships to ensure sustained professional growth of college and University teachers. It is, however, difficult to cover all the 1,82,000 faculty members in the country. It is also felt that mere accumulation of a research degree is not of much help. We are to evolve a system of higher education in which teachers continually tend to grow professionally. In this context the study of Faculty Development and Evaluation in the USA should be meaningful. The present writer visited the States in 1981.

Faculty development is largely a self-regulated phenomenon in the States. As the fittest survives in a competitive society, a faculty member has to assert himself to improve his professional competence. At the university level most teachers hold doctorate or equivalent degrees, whereas in community colleges they have generally Master's degrees.

A teacher strives to grow professionally, attends summer institutes, seminars, workshops in his discipline to refresh his knowledge and learn new skills. But there is no provision of getting this done at the cost of instance of an institution. Of course, I learn that at CSUN they provide training to college teachers, and some facilities to those who follow this programme. The Virginia Polytechnic Institute has also some courses, like The College Teaching of English, Theories of Teaching Composition, Teaching Remedial Writing Skills. The Graduate Studies in English, Illionois State University, offers a degree in teaching of English at the undergraduate level, the Doctor of Arts in English. But in general such degrees are not offered and doctorate is considered a research as well as a professional qualification.

There is, however, a persistent controversy over the issue, though the employer often insists on the research degree. In Mayville State College, I learnt that the state requires 60 per cent faculty with such a degree for tenured posts. At the university level, it is almost a must. Indeed, a teacher is known by three things — research, teaching, and service to the institution and community. At the graduate level research and publications are given much weightage, whereas at the junior college stage the teaching aspect is emphasised. There is, however, a general fall in the number of graduate students in the U.S. varsities, and it is largely felt that "teaching" of a faculty should be the main consideration. As a community college president remarked, Ph.D. holders who have "love for subject, not for students" do not succeed much here. At some places the non-doctorates are assigned more courses to teach than others, so that a reward-punishment formula operates.

In most cases, teachers are judged at the following levels — as a member of an institution, as a member of the teaching community, as a teacher, as a colleague, and as a member of the community. This evaluation is done at four levels — self-evaluation, student evaluation (CSUN calls it student opinions), peer evaluation, and evaluation by the chairperson or dean. In peer evaluation the Dean of the Division nominates a committee of three tenured teachers to attend some classes of a teacher to give their estimate of his competence and performance. All the evaluation processes are performed separately.

For the evaluation of the faculty by *students*, a proforma is used to evaluate a teacher and often the queries *included are un performance in the class, not on* the teacher. Below is a sample of the evaluation of an *instructor named A:*

	1	2	3	4	5	Mean
1. You found the course intellectually challenging	0	0	1	2	17	4.80
2. You found the course interesting	0	1	2	8	9	4.25
3. Instructor made students feel welcome in seeking help and advice	0	0	3	6	11	4.40
4. Methods of evaluating students' work were fair and appropriate	0	0	2	6	11	4.50
5. How does the instructor compare with others you have had at this Varsity?	0	0	0	1	19	4.55
6. How does the course compare with others you have had at this Varsity?	0	0	0	9	11	4.55

(1 poor, 2 below average, 3 average, 4 above average, 5 excellent)

I found that different institutions use different proformas, though many queries are the same. Most grade both the course and the instructor. Sometimes the result is passed over to the instructor, often it is published as Course Guide, for instance in USC and George Washington University. The information on average mean of the department, the difference in expectations of students is also included.

The evaluation of teachers by students is often used for correctional purposes. However, if the authorities want to fire a faculty on this account, they can. In Spelman College, Atlanta, it is given much weightage. It has become a sensitive issue because the assumption that if a learner has not learnt anything, the teacher hasn't taught anything is questionable. A student can't judge the competence and knowledge of a teacher, they say. Further, if he doesn't find a "course" interesting, how is the teacher solely responsible for that? And if this evaluation from below is to be given weightage, why should faculty not evaluate the Dean, Chairperson, and so on? In Milwaukee Area Technical College, they are coming to this issue. One of the queries is — "Is his evaluation of students fair"? As he is to be evaluated by his pupils, thus, he is, if not

(Continued on page 272)

**Principal, Govt. College, Hamirpur (H.P.)*

Integrated studies of the western ghats region

Given below is a report prepared last year by the University of Poona. This will be given in two parts. The second part will appear in the next issue of University News.

Introduction

The Sixth Five Year Plan of the Government of India lays special emphasis on the development of certain geographical areas which ". . . . . present some very special ecological and socio-cultural features, which unless specifically taken into account do not permit the present planning process and the schemes developed within it, to be of major assistance to them. The Hill Areas of the country belong to this category." (p. 413)* Among the Hill Areas in the country identified by the Planning Commission, the Western Ghats Region occupies a significant position.

The Commission points out that "The Western Ghats region consists of a contiguous area of 132 talukas in the States of Maharashtra, Karnataka, Tamil Nadu and Kerala and the Union Territory of Goa. The total area is 134.5 thousand sq. kms. and the population of this area is 24.49 millions " (p. 414). Like the other hilly areas in the country, the Western Ghats "contain the sources, the catchments and the water-sheds of several major river systems which flow to the plains; they abound in forests plant and mineral wealth as well as hydel energy resources. (Our) experience of development planning during the last three decades has increasingly underlined the fact that unless adequate programmes are evolved for the conservation and proper utilisation of the resources of the hill areas, not only the problems of these areas will continue to remain unsolved, but the economy of the plains may also be adversely affected . . . . . there is, therefore, a paramount need for conceiving an integrated, strategy for the development of the hill areas based on sound principles of ecology and economics" (p. 413).

The natural resources of the Western Ghats provide sustenance to millions of people, including a large number of tribals living in the area as well as those living in the regions below the ghats, both to the east and the west. With a view to ensuring the proper husbanding and utilisation of the various resources available in the Western Ghats, the Government of India, through the Planning Commission, is launching a large scale study of the region. Various educational and research organizations, universities, and institutions with specialised knowledge and training are expected to participate in this project of national significance.

Objective

The major object of the Western Ghats Project would be to study the prospects and problems of optimal development and utilization of resources in the region as well as the social and economic characteristics of the communities inhabiting the region that might facilitate or impede such development. The life of the communities living in this region is closely linked to their physical environment, their economic organizations, their social and institutional structures, their values and these have been conditioned by the physical environment. It is necessary to study these formations not merely for their own sake but for understanding their role as factors that facilitate or inhibit the process of development. The problems connected with the development of this region are many and only a few of the more important ones can be identified. The socio-economic problems that are directly related to the physical environment are those concerning energy requirements, land utilization, availability of water, utilization of locally available material resources, degradation of the environment and health.

Role of a university

That a university has a special responsibility in an endeavour of such significance and national relevance cannot be denied. More than any other agency, a university, through its faculty, students and colleges, can assist in the task of development at all stages of planning, implementation, monitoring and evaluation. The Sixth Plan document makes a pointed reference to the role of the Universities.

"The institutions of higher learning would be encouraged and enabled to involve themselves with the developmental activities in the community and provide requisite support through extension services of students and faculties. Such extension work would be considered as part of the normal academic work of the students and teachers, and not as social service. Universities would not only extend frontiers of knowledge but also supply such knowledge to solve problems of the community on whom they depend." (p. 357).

Interdisciplinary approach

It is quite clear that a study of the Western Ghats region would require the collaborative efforts of students and scholars from a wide variety of disciplines —physical, biological and social. In fact, in order to be effective the study will have to be both multi-disciplinary and inter-disciplinary having as its objectives the creation of a strong data base and development of low-cost technologies that can find immediate applications in rural areas. The initial task of the study, therefore, may be classified under three broad heads :

(i) The first task would be to map out in detail the Western Ghats region as regards its morphometry, geology, climate, vegetation, demographic composition and distribution as well as the socio-cultural aspects, the educational institutions, health-facilities formal, social organisations, etc. A large body of relevant information is likely to be available with the meteorological, forest geology, agriculture and engineering departments of the government and in the census reports. This mapping with accompanying descriptions would help in identifying problems for further study as well as the need for further data.

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* All quotations are from 'Sixth Five Year Plan 1980-85, Government of India, Planning Commission.'

(ii) There are already a number of studies available on different aspects of the Western Ghats region. Reviews of these studies should be undertaken in the first instance to categorize and highlight the questions raised in them. These would prove significant in planning further investigations.

(iii) In addition to the above two types of studies, specific situations with fairly well recognized problems may be taken up for detailed study.

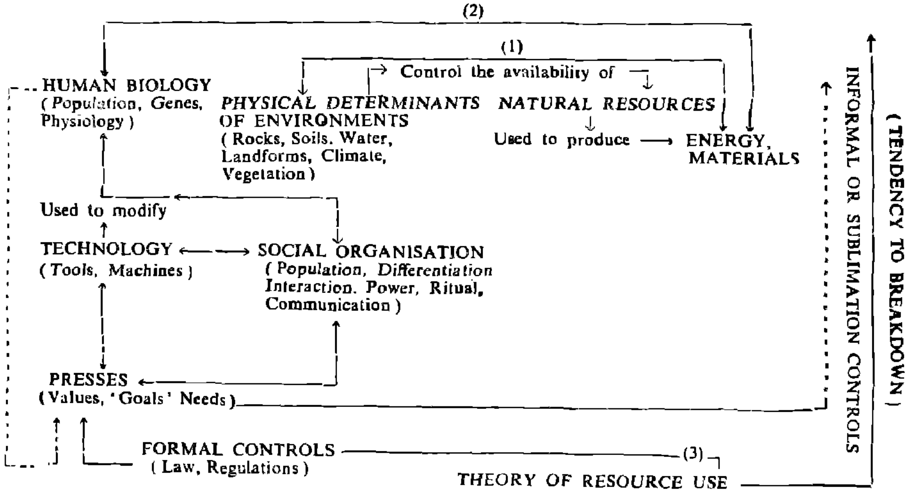
The three types of study envisaged above do not necessarily exhaust all the possibilities nor are they seen as sequential. Indeed, it should be possible to undertake in some areas the kinds of experimentation mentioned under (iii) above while the detailed mapping of the larger area is in progress. The important thing to recognize is that in a project of the sort envisaged under the "Integrated Studies of Western Ghats Region", it is not necessary to define every specific study at the very out-set. It is far more important to identify the major parameters that ensure effective collaborative work among various disciplines and teams of inter-disciplinary researchers and workers.

A possible model for the study

The theoretical framework essential for an integrated study would have to be both dynamic and unified. It should be able to reveal the inter-relationships between physical environment, natural resources, social organization, institutional structure, value systems, motivational stresses and strains, and the techno-economic structure of the selected communities in the Western Ghats region. The model should reveal the various aspects of the relationship between the physical and socio-economic realities in an integrated and unified manner.

The relationships so studied are to be considered as dynamic and illustrating a complex network of feed-back processes. For instance, the processes of adaptation of ecological resources is affected by the social organization and the power structures of the community concerned; and the range, quality and manner of environmental use as well as the consequent ecological results react upon the institutional structures and norms within the community. All socio-ecological responses in a community, therefore, are inter-locking and interacting.

The theoretical model should also provide a basis for studying the problems of both formal and informal controls in the processes of adaptation. It should be possible to study all the mechanisms that have been set up formally (i.e. administrative mechanisms) to guide and control the impact of technology and social practices upon the natural environment. This would include the study of the various measures that have been implemented to avoid the hazards of over-use and abuse of environment.


(2)
(1)
Control the availability of
HUMAN BIOLOGY
(Population, Genes, Physiology)
PHYSICAL DETERMINANTS OF ENVIRONMENTS
(Rocks, Soils, Water, Landforms, Climate, Vegetation)
NATURAL RESOURCES
Used to produce
ENERGY, MATERIALS
Used to modify
TECHNOLOGY
(Tools, Machines)
SOCIAL ORGANISATION
(Population, Differentiation Interaction, Power, Ritual, Communication)
PRESSES
(Values, 'Goals' Needs)
FORMAL CONTROLS
(Law, Regulations)
(3)
THEORY OF RESOURCE USE
INFORMAL OR SUBLIMATION CONTROLS
(TENDENCY TO BREAKDOWN)

THEORETICAL MODEL FOR ADAPTIVE DYNAMICS

Solid lines indicate Short-term lines of influence.
Broken lines indicate long-term lines of influence.

The model should also make it possible to study the impact of informal rituals, ceremonials, social and cultural practices and sanctions that have shaped the the pattern of human impact on the environment. From this point of view, the study would focus on social beliefs and value systems in terms of their ecological consequences.

Through the integrated study of the various aspects of ecological adaptation in and by the communities living in the Western Ghats region, it should be possible to arrive at the concept of ecological optimality. Such a concept would be ultimately useful in planning for development in the region. The theoretical model envisaged for such a study would then be oriented towards policy formulation and guidance. A design of the proposed model is given in a figure on pre-page.

People participation

No study or examination of the socio-ecological problems of the Western Ghats region would be feasible without the active cooperation & participation of the people living in the region. A developmental strategy that is formulated without recognising the role of the people's participation would not succeed. The Planning Commission, too, is quite clear on the role that people have to play in development. "For promoting the scientific use of our land and water resources it is essential that the farmers in each command, watershed and catchment area participate in the development and management of soil and water resources. . . . . And . . . . . . "it will be necessary to ensure that at every stage of planning and implementation there is full participation and involvement of the people". (p. 93)

[To be continued]

Examination Reform

(Contd. from page 268)

the setting of University question papers for written examinations:

1. "A closer scrutiny of the question papers is essential with a view to examine how far these confirm to the objectives of instruction".
2. "More time should be allowed for the setting of question papers".
3. "Use of other methods of examination than essay type alone is recommended".

These suggestions hold even today. Any question paper needs to be properly scrutinized. This leads one to painstaking moderation of a question paper in the light of the accepted criteria which ensure the depandability of a question paper as an instrument of measuring something.

Examination Reform Movement in India should be looked upon as an ongoing thought-process rather than a multi-dimensional innovation. It is not supposed to be an innovation for all times to come. It has to be a part of our 'learning culture' one day. It is rather expedient that we begin to operationalize sound thoughts and evolve a strategy which is not only real and flexible but functional and feasible too. [*Text of the key-note address delivered by Dr. G. B. Shah at a Seminar on Examination Reform at Gandhi Shikshan Bhavan, Bombay.*] □

Faculty Development and Education

(Contd. from page 269)

tenured, likely to award grades rather generously. This has resulted in some varsities in grade inflation.

It is indeed a difficult situation. But somebody has to evaluate the class performance of a teacher, and students could be the best judges in many ways. This system works almost well in the competitive, mobile society which offers many avenues and resources. Further, it is often not used for promotion/salary raise purposes. It only enables the instructor to weigh, and consider and improve his teaching skills, as it is done periodically and in an open way. Evaluation is a part of life in America, and this is also compared with the average grade of the entire department. In case of promotion, average of the last four or five years is used. Moreover. the teacher evaluation is done at so many levels, and it often goes for review to three committees —Department Committee, College Committee, Area Committee. Indeed, when the evaluation is consistently low, the teacher himself usually leaves the institution.

In conclusion, three suggestions may be made. First, a teacher should be seen at various levels — as a teacher, a researcher, and a member of the institution and community. The Panjab Agricultural University, Ludhiana has rightly fixed the following norms to evaluate teachers for promotion; research, teaching, and extension work. Second. University should include some courses on the teaching of disciplines in their M. Phil syllabi. This has already been done in some areas in Nagarjuna University (AP), and Central Institute of English and Foreign Languages, Hyderabad. Third, we should introduce in-built checks like "efficiency bar", "assessment", teachers' evaluation by students for the University teachers. □

Campus News

National symposium on botanical research at Patna

A three-day national symposium on "Recent trends in Botanical researches" was recently held at Patna University

Botanists attending the symposium organised by the Centre of Special Assistance in Cytogenetics, Department of Botany, Patna University, pleaded for more extensive researches for augmenting agricultural production, combating population explosion, controlling environmental pollution, and developing suitable drugs ond antibiotics.

Inaugurating the symposium Prof. A.K. Sharma, Head of the Department of Botany, Calcutta University, said that Indian scientists were not lagging behind their foreign counterparts in the field of researches. He, however, opined that the outcome of these scientific researches must be applied for betterment of the human society.

Prof. Sharma, who is also a fellow of the Indian Science Academy, enumerated some recent developments in genetics in general and engenics in particular and emphasised the unit genes which are primarliy responsible for expression of character and transfer of heredity from generation to generation. Giving details of the chromosome structure, repeated DNA sequence and human genome Prof. Sharma said that genetic engineering could prove useful in controlling certain genetic defects found in organisms.

Dr. S. P. Sinha, Vice-Chancellor of Patna University, in his presidential remarks, called upon the scientists to devise ways and means for limiting further growth of population on this planet, improving ecological balance, reclaiming deserts, checking erosion and keeping moisture level of the soil at the optimum for growth of crops.

He said that biotechnology and genetic engineering would help agriculturists in providing new cultivars and species of crops better suited to a particular climate and type of soil. New agronomic practices and methods of rotation of crops would have to be devised. He said green revolution had really added tremendously to the yield of cereals but there was still a lot to be done to improve the agronomic quality as well as amount and quality of protein.

He pointed out that depedendence on the use of fertilisers would be minimised through genetic engineering. He expressed the hope that the plant scientists would devise ways and means for a rapid implementation of the various schemes visualised in the organisation of the committee on Biotechnology.

Earlier Dr. R. P. Singh, Head of the Department of Botany, Patna University, welcomed the guests. Dr. R. P. Roy, Director of the Centre of Special Assistance in Cytogenetics, introduced the theme of the symposium. Dr. Uma Kant Sinha, Professor of Botany, proposed a vote of thanks.

NAMS/NBE workshop on MNAMS medicine paper part II

As a follow up action of the Simla Workshop organised by the National Board of Examination (NBE) in 1980 to bring about uniformity in Medical examination at the Part I level of MNAMS examination, and to follow the recommendations made by the National Academy of Medical Sciences (NAMS) to replace the viva-voce part of clinical examination of part II MNAMS with a multiple choice test relating to clinical competence, another workshop was organised for a week at PGI, Chandigarh, from March 3, 1982. Dr. George D. Webster from National Board of Internal Medicine, Philadelphia, USA and Prof. Natarajan from the Association of Indian Universities were invited to act as resource persons. The main objectives of the workshop were :

1. To clearly specify various areas of clinical competence to be tested with the help of Multiple Choice items ;
2. To write specifically abilities and skills involved in clinical competence ;
3. To prepare a blueprint for this part of the examination;
4. To prepare a fairly large number of Multiple Choice items in clinical situations and live problems, using visuals ;
5. To prevalidate all the written items in small groups; and
6. To assemble a sample examination paper out of the prevalidated items.

Prof. Natarajan discussed details of various formats and basic fundamental principles of item writing. He reiterated that the Multiple Choice item was the most versatile of all selection type items and can be constructed with care and thinking to test higher levels of intellectual ability such are involved in clinical competence. He presented three formats (one best response, assertion-reason type, matching type) and suggested that they be followed in constructing items.

Along with expansion of content, ability is to be expanded and he suggested three levels of ablities (recall, interpretation and solution/ judgement).

He explained in great detail the components of MCQ viz. stem, key and distractors, and elaborated on certain do's and don'ts. He then presented a set of general and specific criteria for judging the quality of Multiple Choice items.

Dr. Webster complimented the information and demonstrated certain common mistakes in construction of test items in clinical medicine.

Dr Ahuja explained the contents and ability of the proposed test materials for this workshop. Elaborate discussion took place on this subject and the following consensus were arived at :

1. The broad objective is to set items in clinical competence to replace part of Theory paper and viva voce in part II MNAMS Medicine examination.
2. The following six areas of content were identified and the break-up of figures and areas to be covered was to be as follows :

   A. Radiology (60)

   B. ECG and ECHO (60)

   C. SCAN (30)

   D. Laboratory Data (80)

   E. Patient Management (60)

   F. Dermatology (10)
   (Total : 300)

Prof. Natarajan presented tables of specification on the ablities and contents. He indicated with the help of the table, how the Board must form one examination paper and he helped the group arrive at the number and levels of items in these content areas. The participants formed small groups and framed items in various content areas. Dr. Webster made editorial comments and suggestions on the items that had been prepared. He said that the questions prepared were fairly in order with reference to contents and ability. Prof. Natarajan also indicated some editorial changes to take care of 'format accuracy'. He later gave examples of a few items of Part I Examination of last year to illustrate his point that there are certain items giving negative discrimination due to miskeying, ambiguity etc. He desired that item writers give the following additional data in the items that they are preparing, viz.

i) The content area should be marked A to F (table).

ii) Ability tested to be mentioned. These are to indicate levels 1, 2 and 3.

iii) Time required for answering

iv) Marks to be given.

The item writers agreed to do this prevalidation once the final draft is prepared, He suggested that a small group later do this prevalidation.

3-year degree course for UP varsities

Uttar Pradesh will introduce three-year course at degree level in all the State universities and colleges simultaneously so that the state could fall in line with the national pattern of higher education.

This was the upshot of the two-day deliberations at the conference of vice-chancellors of the state universities which concluded at Lucknow recently.

The conference urged various universities to undertake necessary spade work in regard to courses of study, syllabi and orientation training courses for teachers. The universities were requested further to submit financial estimates for the launching of this programme.

The consensus at the conference was that steps should be taken for proper development of the degree colleges during the Sixth Plan period. To facilitate and accelerate the pace of development, the conference decided to request the University Grants Commission to relax the conditions laid down by it for the grant of development grants so that the level of higher education specially in the backward and under developed areas could be brought to a minimum essential level of development.

In order to make the universities and degree colleges more responsive and efficient, the conference emphasised the need for introducing changes in the Uttar Pradesh State University Act 1973.

As regards normalisation of academic session in universities, the conference urged the Government to take necessary action to help the universities to achieve normal session so that students of the State were not handicapped in matters of admission outside the state and all India competitions.

The conference also underlined the need for providing adequate funds for students welfare so that their energies could be channelised towards constructive and fruitful activities.

Patna to have new campus for PG departments

The Patna University will soon have a new campus for its postgraduate departments in order to remove overcrowding from the present campus, according to the Vice-Chancellor, Dr. S. P. Sinha.

Addressing the annual meeting of the Patna University Senate, the Vice-Chancellor said that the State Government was contemplating to allot a plot of 250 acres to the university at Sheikhpura locality near Danapur and the UGC had already assured of all help in establishment of the new campus.

He announced that the university would start one-year degree course in journalism from the next academic session under the Sixth Plan grants. The university was also contemplating to set up a computer centre with the help of UGC grants.

Study of 'Ragging' at Agra

A study of ragging in the educational institutions of Agra, with special reference to the boys and girls residing in hostels, will be undertaken by the Institute of Social Sciences, Agra University, it is reported.

The final year students of MSW will interview 1,500 boys and girls besides the administrators, the parents and the guardians. The study has been planned following complaints by students that ragging was on the increase. Cases have been reported when the students withdrew themselves from the educational institutions due to unbearable ragging.

The project report is expected to be submitted to the Vice-Chancellor within two months.

PU's seminar on literature

Delivering the inaugural address at the two-day seminar on "Experimentalism in Modern Literature" at the Panjab University Campus, recently, Professor R.C. Paul, Vice-Chancellor, said that our present university system makes no provision for encouraging points of contact among the studies of various regional literatures and literary traditions of India. This has proved a serious hurdle in the way of exploring and highlighting the Indianness of Indian tradition and has not given pan-Indian norms of excellence to flourish.

Prof. V.N. Tewari, Chairman, School of Punjabi Studies, in his keynote address traced the history of Experimentalism in Indian Literature and said that it was unjust to allege that Agyey, Nun Meem Rashid and Diwan Singh Kalepani were imitators. "In my opinion they are the representatives of the struggle in their languages to find new modes of expression to answer the challenges of their creativity. Experimentalism in Indian Literature of only those writers whose creativity is grounded in genuine quest for new human realities rather than the love of sensationalism would survive" he added.

Prof. S.H. Vatasayayan in his presidential remarks decried the habit of looking to the west for literary movenments. He observed that if we did not find the inspiration from the west, we considered ourselves backward. He further said that poets and writers must study the Indian situations and react accordingly. He enlisted various challenges that existed before the Indian poets and writers and asked them to find solutions to them.

OU seminar on library and communication

Delivering the key-note address at the three-day seminar on Library and Communication organised by the Department of Library and Information Science of Osmania University and the British Council, Prof. K.J. Mac Garry, a British Library expert in communication, said that the libraries should adapt themselves to meet the information needs of the society. He said the library as a part of the total communication set up was facing new challenges with knowledge explosion and fragmentation of disciplines.

The Accessibility of information was the most important thing. He said the knowledge was doubling in six to eight years in various fields and it was very difficult to keep track of the development even by the experts. In this situation, it was almost impossible for the libraries to be self-sufficient. With the advent of computers, the libraries in the future would undergo a drastic change, he opined. It has also become necessary to think how much of information is worth storing for future.

Dr. William Mulder, Director of American Studies Research Centre, who inaugurated the Seminar said the Librarians were keepers of knowledge and should be able to guide students and scholars. He said the aim should be to simplify matters and help in greater accessibility.

Dr. Bh. Krishnamurti, Director, ICSSR, Regional Centre, who presided, said libraries in India have an extra role to play of knowing what type of information attracts people. He said the librarian should be both a generalist and a specialist to meet the new demands.

Amendment of Varsity Act in Orissa likely

It is reported that the Government of Orissa is likely to introduce a bill during the current session of the Assembly to amend the Orissa University Act to provide for uniform procedure for the appointment of vice-chancellors and recruitment of professors, registrars and finance officers.

Orissa also proposes to formulate a scheme to provide for the inter-transferability of aided college teachers who would be brought under a common cadre.

Promotion plans for teachers

It is reported that the University Grants Commission is formulating a merit-cum-experience promotion scheme for teachers in Universities and Colleges.

Speaking to newsmen at Chandigarh recently, the Chairman of the U.G.C. Dr. (Mrs) Madhuri Shah, pointed out that the U.G.C. had already accepted the principle of promoting teachers on the basis of merit. It was however felt that experience in addition to merit, should be taken into consideration while formulating a scheme in this regard.

The scheme, it is reported, is likely to be announced in a month's time.

Performance of college teachers to be scanned in West Bengal

It is reported that all college teachers in West Bengal will henceforth be requested by the universities to submit an annual statement showing the number of classes allotted to them by the college authorities, number of classes which could be actually taken in the academic year and also the percentage of passes of the students of each teacher as compared to the percentage of successful candidates of the university in the particular subject.

Central Varsity in Pondicherry

The University Grants Commission, it is reported, has approved the setting up of central university in Pondicherry. The Union Finance Ministry, it is said, has already cleared the proposal.

IUACE seminar

Prof. R.C. Paul, Vice-Chancellor, Panjab University, said that life-long education is already accepted as a concept, a form of behaviour and as a philosophy. The goal is human development which is possible through extension of educational and learning opportunities to a greater number of people. The value of learning has to be interwoven into the social, political, economic and cultural fabric of individual, family and civic life. Learning opportunities have to be democratized and made available to all so that education is not a segregated activity. Prof. Paul was inaugurating a two-day seminar on 'Continuing Education—Priorities in Programmes' in Chandigarh recently.

Mr. J. D. Sharma, Honorary Secretary, Indian Universities Association for Continuing Education, in his key-note address, identified the categories which need immediate attention through continuing education. These were illiterates and those living below poverty line and under-employed in rural areas. He observed that non-formal education was dethroning the formal education which clearly indicated the importance of extension services in universities. He pleaded that the extension services be linked with regular curriculum universities.

Dr. A.K. Dhan, Vice-Chancellor of Ranchi University, in his presidential address, said that no development was possible unless all sections of society developed.

Osmania Academic Council's decisions

The Academic Council of Osmania University recently approved the starting of B.Sc. Farm Science and Rural Development Course by the Loyola Academy, Heyderabad, from the next academic year. The proposal of introducing Industrial Chemistry as an optional in B.Sc. was also approved.

In an another resolution it approved that an entrance test should be conducted for admission to M. Phil Course in the Faculties of Arts, Commerce, Education and Social Sciences. It also approved in principle the starting of M.P.Ed. course.

The Council agreed to increase the strength from 25 to 40 in B.E. (Mining Engineering) at Kothagudem School of Mines. It ratified the B.Sc. (Four year) Dairy Technology Course started from this year at Kamareddy and formally approved the M. Tech. Course in Computer Science.

ISM collaboration with UK university

Indian School of Mines plans to enter into an ongoing collaboration with Nottingham University, U. K., for developing academic ties between the ISM Department of Mining Engineering and its counterpart at Nottingham University. The proposal has recently been accepted by the British Council under its ALIS — Academic Links and Inter-change Scheme.

This international colloboration prospal has materialised as a result of discussions held between Prof. G S Marwaha, ISM Director, during his visit last year to Britain and Prof. Dr. Tom Atkinson, Head of the Nottingham University, Department of Mining Engineering. Dr. Atkinson was associated with Indian mining Industry for a number of years in the fifties.

Meditation for better performance

An American sports psychologist, Kurt A. Krueger stated recently that meditation can enable sportsmen to excel. Krueger has been an All-American swimmer and is reported to have coached American olympic and world record holders. It is also reported that he has been invited by the Indian Olympic Association to conduct workshops for India's teams for Asian games on how to use meditative energy for better performance on sports fields.

MSc applied electronics course at OU

Under a special scheme of the University Grants Commission, the College of Science of the Osmania University started a 3-year MSc(Tech) Applied Electronics course in 1976. The course is spaced over six semesters and covers subjects ranging from Fundamental Physics to modern communication systems and Advanced Electronic topics like Microprocessors, Thin and Thick Film Technology. The course combines modern industrial subjects and also caters to urgent needs of the country for skilled professional personnel.

A UGC Fellowship of Rs. 400/- p.m. is also offered to the students in the final year.

Women's varsity for Tamilnadu

The Tamilnadu Government has proposed a seven-member committee to advise the government on the establishment of a Women's University in the State. The committee will be headed by Dr. Malcolm S. Adiseshiah and would comprise Dr. (Mrs) Lalitha Kameswaran, Dr. (Mrs) Rajammal Devadoss, Dr. V. C. Kulandaiswami, Dr. Radha Thiagarajan, Prof. Vasanthi Devi and a representative of the UGC.

KU gets Rs. 15 lakh for coaching students

The Haryana Government has granted Rs 15 lakh to Kurukshetra University for coaching students for various competitive examinations, according to Mr M. Kuttapan, Vice-Chancellor.

A nine-month I.A.S coaching course for students belonging to the Scheduled Castes was introduced in Kurukshetra University in January and the banking coaching scheme for probationary officers and the lecturers training scheme would be introduded in April.

A working women's hostel and a girls' hostel for Scheduled Caste students would also be constructed. The construction cost would be shared equally by the State and Central Governments, Mr Kuttapan said.

Mining college in Karnataka

It is reported that the State Government will soon have a Mining Engineering College and that the Central Joint Board of Mining Education has already cleared the proposal to set up the college in Karnataka.

Research methodology course at Bombay

The Department of Law of the University of Bombay will be organising a summer course in research mothodology with a view to enlightening the scholars in the technique of research. This course will provide an opportunity for exchange of views and thoughts on this subject by different scholars. This will also meet the demand of the students for providing some general guidance through the Department.

The summer course will consist of 4 sessions to be held on second Saturdays in the months of May, June and July in the Department of Law. The first session will be held on 29 April 1982.

Calcutta to prepare catalogue of examiners

For the first time, Calcutta University would prepare a catalogue of its 22,000 examiners. A machine for this system had already been purchased. A beginning would be made by compiling details of examiners appointed this year, it is reported.

The catalogue, it is hoped, would ensure efficiency by speeding up appointment of examiners. Besides listing details of examiner, the catalogue would also contain his performance record in all examinations.

There was also a plan for making micro-films of all tabulation books. In the first phase, the period from 1857 to 1900 would be covered. Talks had already been held with some companies. But since the cost would be enormous, the university was likely to request the University Grants Commission for finance. This task had acquired urgency because it was becoming impossible to keep the old results. The papers had turned yellow and brittle.

Summer institutes in agriculture

The Indian Council of Agricultural Research has decided to hold 19 Summer Institutes in the field of agriculture sciences during coming summer vacation of 1982 for the benefit of teachers, research workers and extension workers, particularly the subject matter specialists. The main objective of this inservice training course would be to communicate the latest technological advances in the subject and provide the necessary orientation to teachers and research workers of agriculture/agricultural engineering/animal science/H.Sc./fisheries so that they are able to relate the teaching of their subject to the problems in their respective disciplines.

Details relating to name, address of the Director of Summar Institute, location of centre and duration can be obtained from the ICAR.

Efforts to preserve 600 strains of rice

The Botanical Survey of India and the Indian Council of Agricultural Research are trying to preserve about 600 strains of rice plants and many varieties of sugarcane identified and collected from the North-Eastern region. Botanists believe that wild progenitors of these plants came from this region.

These strains are being preserved to develop new varieties of the desired characteristics. A group of scientists has suggested botanical gardens with glass houses in all the seven States and Union Territories of the North-Eastern region for the preservation of the identified strains. Extensive studies on non-flowering plants of the region have been recommended to preserve the vanishing species.

Blue green fertilizer

Blue green algae (BGA) called bio fertilizer in scientific parlance can boost paddy production. It supplies nitrogen to the plants. A report of the All-India Coordinated Project on Algae of the Department of Science and Technology claims that the per hectare dose of BGA costs Rs. 20. Thus farmers who cannot afford to buy chemical fertilizers can raise paddy output by 10 to 15% by using BGA which contributes about 25 to 35 kg. of nitrogen per hectare in one cropping season.

BGA generates about 7.453 million calories which is 22.2% more than what is obtained without algae. But when applied with chemical fertilizers (100 kg. per hectare). BGA supplies 13% energy to paddy.

BGA can be produced by farmers. BGA cultivation yields an income of Rs 1,000 to Rs. 15,00 per 2,000 square metres in 30 to 40 days.

New variety of rice developed

A new variety of rice for upland rainfed areas has been evolved by agricultural scientists at Faizabad's Narendra Dev University.

Known as "Narendra I," it has been developed by cross-breeding of "Velly Patna" and "IR 8".

The average production of the new variety is expected to be 30 quintals per hectare but with special care the yield could go up to 45 quintals per hectare.

Since it is a dwarf variety it's plant does not trail. The maximum height of the plant could be 75 centimetres. It takes 105 days to ripen and does not solidify in case there is rain even if it has ripened. It is disease resistant and contains nine per cent protein.

Eight to ten quintals of rice could be obtained per hectare from local varieties. Even the improved variety "Nageena 22" gives only 20 quintals per hectare. The development of the new variety, "Narendra I," will enable the farmers to cultivate rice in upland areas.

Russian delegation visits HAU

A three member Russian delegation of Sorghum (Jawar) experts led by Mr. B.R. Martynov, Deputy Minister of Agriculture of USSR visited Haryana Agricultural University recently. Mr. Martynov in a discussion with the Vice-Chancellor, Dr. D.R. Bhumbla said that in view of the excellent work in sorghum research being done at Haryana Agricultural University, this crop too would be included in the Indo-Soviet protocol agriculture likely to be signed sometime in May or June this year. He said that exchange of sorghum breeding material could be useful for the scientists of both the countries. The Russian Minister was accompanied by Dr. Boris Malinovsky, Head of the all Russian Scientific Research Institute for Sorghum.

The Russian delegation also visited Haryana Agricultural University's nucleus seed project, the forage and oil seeds sections of the research farm and saw the processing plant for the breeders seeds. They also visited the constituent colleges of University and had discussion with the Deans. Mr. Martynov showed particular interest in the extension network of Haryana Agricultural University and lauded the receptivity of Haryana Farmers who readily accepted the scientists advise.

Dryland farming

After conducting experiments for three years, the University of Agricultural Sciences at Hebbal, near Bangalore, has found that the jack bean, also known as the horse bean, is highly remunerative to dryland farmers.

The jack bean has been introduced to India from Arizona and Mexico, where it is being grown in the drought-hit regions. It has been grown under varied environmental conditions. It is capable of growing even in marginal areas and nutrient-depleted soils where growing other pulses is risky. It has been grown in areas where the average annual temperatures range from 14 degrees C to 27 degrees C, and where rainfall is as high as 4,200 mm and as low as 700 mm.

The crop can yield on an average between 800 and 1,000 kg. of dry seeds per hectare. In fertile soils, the yield could be as high as 4,600 kg. per hectare. Except for the stem borer and fungal rot, which sometimes cause serious losses, the plant is almost immune to most of the pests.

Dr. G. Shivashankar and Mr. M.R. Gururaja of the Agricultural University, who have been engaged for the past three years in raising the jack bean crop in the dryland of the university farm under varied spacing and fertilizer levels, report that the tender pods of the bean contain about 23% protein, serve as an excellent pod vegetable and taste much like French beans. The tender pods are harvested when half-grown. The full grown but still green soft seeds can be cooked as a vegetable.

The scientists say that the dry and fully mature seeds are also edible, but only after boiling with one or two changes of water and peeling of the seed coat to remove growth-inhibiting proteins which are present only in mature seeds. In addition, the jack bean could also provide excellent green manure as well as forage and serve as a cover crop. Yields of 40 to 50 tonnes of green vegetation per hectare have been reported.

The Home Science Department of the University has found that the flour of the dried jack bean can supplement Bengalgram flour.

PAU releases high-yielding maize variety

A new high-yielding and early maturing variety of maize named 'Navjot' developed by the Department of Plant Breeding of the Punjab Agricultural University has been released for general cultivation in the State. This variety has been approved by the State Variety Approval Committee.

'Navjot' which is an early-maturing variety has better resistance to diseases and lodging than Ageti 76. It gives good performance even in medium and low-fertility soils. Its grains are attractive, medium in size, yellow orange in colour and mostly of flint type. It matures in about 85 days and yields 16.4 quintals per acre.

Pantnagar releases new maize variety

A new early-maturing variety of maize 'Tarun' developed by the Pantnagar Agricultural University has been released recently by the central variety release sub-committee for entire Indo-Gangetic plains except Rajasthan.

'Tarun', developed by the maize group, matures in 85-90 days and yields 40-45 quintal/ha Its grain are bold and orange in colour and has high degree of resistance to brown stripe downy mildew disease. It has been extensively tested in the farmers' fields in non-farm trials and minikit trials under their conditions.

Bangladesh scientists visits PAU

A seven member delegation of agricultural scientists from Bangladesh led by Dr. Ashraful Islam, Principal Scientific Officer visited the Punjab Agricultural University recently. Apart from studying the working of different departments of the University, the scientists also visited villages, Humbran and Birmi, where they saw small and marginal farmers who supplement their income through dairy and poultry farming.

Buffalo research centre proposed at Jind

It was recently stated that the State Government of Haryana would soon acquire land at Jind for setting up a Central Institute for conducting research on buffaloes.

Two regional stations, one in Andhra Pradesh and the other in Gujarat, are also proposed to be established under a scheme of the ICAR.

Moroccan delegation visits HAU

A three-member Moroccan delegation visited the Haryana Agricultural University recently to study the soil and water management techniques evolved by the university. The visiting team held discussions with the senior scientists of the university and appreciated the wheat breeding work being conducted by the researchers. They said that many of the techniques could also be applied in their own country. They were especially interested in the dryland agriculture section. They also went round the animal farm and Gandhi Bhawan and studied the extension network of the university.

The delegation consisted of Mohmad Rochdi, Chief of Agriculture Production, Mr. Ahmed Moussavi, Chief of Livestock Production and Mr. F.M. Patorni of the World Bank.

Dr Athwal visits PAU

Dr. D.S. Athwal, a plant breeder now working in the International Agricultural Development Service as Programme Officer for Asia visited the Punjab Agricultural University recently. He showed keen interest in the Department of Plant Breeding and Genetics and also had discussions with the Directors of Research and Extension and heads of departments of Plant Pathology, Entomology, and Soils. He discussed with the Vice-Chancellor, Dr. Sukhdev Singh, more fruitful use of vast manpower trained in agricultural sciences.

News from Abroad

New technique for recycling refuse

In the last years French industrialist and research groups have tried to perfect the means for the effective recyclage of refuse. Such research has finally come up with a technique for methodically sorting out the principal constituents of household refuse. With this technique, called "Revalord", sorting can be done without grinding the components; this makes an essential difference compared with plants already in existence. It is, in fact, of considerable advantage since the constituents can be recycled directly, each within its own sector, whether it be paper cardboard, glass, plastic, ferrous metal or aluminium. The town of Nancy has been the first to take an interest in this new technique. Last year, it decided on the installation of a plant with a capacity of 1,25,000 tons per year, operating on the "Revalord" principle.

Sorting operations consist of several successive stages. First, three types of refuse are sorted mechanically: cumbersome objects like packing cases and cardboard boxes; flat objects like newspapers and magazines; flexible materials which are most often plastics or rags. Next, a magnetic separator sorts the scrap metal, mostly consisting of cans.

The final sorting is effected with a sieve: on one side, the refuse full of organic matter which can ferment; on the other, the remaining items of very mixed character. The latter then pass through several machines which separate dirty paper, wood, glass and plastic wrappings.

According to the nature of the refuse processed, one can obtain in weight of recyclable product about 10% in paper and cardboard, 7% in glass, 1% in plastic bottles, 3% in scrap iron, and 0.2% in aluminium.

It has been calculated that revenue from the sale of recuperated products in the Nancy plant not only cover the operating costs but amortize the initial investment in the operation in which the Bureau de Recherches Geologiques et Minieres (B. R. G.M.) is involved.

The experiment at Nancy should confirm original expectations, namely that with the "Revalord" technique, city refuse can be eliminated at a lower cost than with techniques used until now.

[*Reproduced from: News from France, 13/81, No. 96*]

1985 Universiade

The Federation International du Sports Universitaire (FISU), it is reported, has taken a decision that the 1985 Summer Universiade games will be held at Kobe, an international port city of Japan.

The Universiade is held every two years in summer and winter in which university students and graduates between 17 and 28 years of age participate.

The Kobe Summer Universiade is proposed to be held for 12 days at the end of July 1985. Events will include track and field, swimming, gymnastics, basket-ball, tennis, volleyball, fencing and judo.

Some 3,500 athletes, 1500 officials and 1,000 reporters from 80 nations are expected to gather in Kobe for the games.

Conference on early devotional literature in new Indo-Aryan languages

A Conference on 'Early Devotional Literature in New Indo-Aryan Languages' was organised by the Rheinisch Friedrich Wilhelms University, Bonn, from 18th to 21st March 1982 with financial support from the German Research Society and the German State of North Rhien Westfalia. The Conference was attended by over 50 eminent Indologists from FRG, France, Blegium, Holland, U.K. and USA besides 8 Indologists from India. The Conference was organised in close cooperation with the Indian Embassy. The subjects highlighted in the discussions during the Conference were: '*Development* of early Krishnaism in Gujarat'; 'Audience experience of Ramlila and Bhajan programme from the point of view of foreigners'; Contributions of Muslim saints of Maharashtra to old Marathi literature'; 'Bhagvatgita'; 'Devtion of Ganesa in early Marathi literature'; 'the Impact of Islam on Tulasidas poetical work': 'Braj Bhasha'; 'Discovery of an object of meditation'; 'life and poetry of Raskhan'; 'Early manuscript of Sikh Scriptures' etc.

Bonn University is one of the oldest Geman universities where Department of Sanskrit was set up about 150 years ago. Keeping in view the rich Indological traditions, the University has organised this Conference. Prof. Dr. (Mrs) M. Thiel-Horstmann, who has done work on the Bhakti Movement in India was the convener of the conference.

Personal

1. **Dr. P. Rabindra Reddy, Reader, Department of Chemistry, Osmania University, has been nominated to the New York Academy of Sciences, USA.**

Conferences, Congresses and Seminars

April-July 1982

Date	Topic	Venue	Host Institution/s
Early April 1982	All India Rice and Research Workshop	Bhubaneshwar	All India Coordinated Rice Improvement Project, Hyderabad.
3—4 April 1982	Maintenance Management	Bombay	Maths Department, IIT Bombay
4—5 April 1982	All Gujarat Teachers Conference	Ahmedabad	Gujarat University, PB No. 4010 Ahmedabad 380 009
4—10 April 1982	Workshop on Recent Advances in Paediatrics	New Delhi	AIIMS, New Delhi 110016
5—10 April 1982	Maintenance of Electrical Equipments in Mines	Dhanbad	Indian School of Mines
5—10 April 1982	Methods and techniques of Groundwater exploration	Dhanbad	Indian School of Mines
5—10 April 1982	Personnel for non-personnel executives	Bombay	National Institute for Training in Industrial Engineering, Bombay.
5—10 April 1982	R &D Management	Bombay	National Institute for Training in Industrial Engineering, Bombay.
5—16 April 1982	Production Management	Bombay	National Institute for Training in Industrial Engineering Bombay.
6—10 April 1982	Seminar on Mathematical and Engineering concepts in Biological and Medical Research	Bangalore	CEDT and Indian Institute of Science, Bangalore
7—8 April 1982	National symposium on manufacture of nuclear components	Bombay	Department of Atomic Energy, B.A.R.C. Trombay, Bombay-400 085
7—10 April 1982	Aerodynamics symposium of ARDB	Bombay	Aero. Engineering Department, IIT Bombay.
7—27 April 1982	Combustion and I.C. Engines	Roorkee	University of Roorkee.
7—27 April 1982	Prestressed Concrete	Roorkee	University of Roorkee.
8—9 April 1982	Predictive maintenance	Bombay	Regional Directorate, NPC, Bombay
9—11 April 1982	Women and the law	Amritsar	Law Department, Guru Nanak Dev University. Amritsar 143005
12—13 April 1982	Ninth national management convention: Management of Inflation and growth	New Delhi	All India Management Association, Management House, 14 Institutional Area, Lodi Road, New Delhi-110003
12—14 April 1982	Workshop on medical education technology	New Delhi	AIIMS, New Delhi
12—15 April 1982	Fourth Workshop on participative management with focus on worker's participation in Management	Gurgaon	Management Development Institute, Jeevan Tara Building 5 Parliament Street, N. Delhi-110001
12—17 April 1982	Inventory management workshop	Bombay	National Institute for Training in Industrial Engineering, Bombay
12—18 April 1982	Computer-assisted financial management	New Delhi	Management Development Institute, New Delhi.
12—23 April 1982	Human relations	Bombay	National Institute for Training in Industrial Engineering, Bombay
12—23 April 1982	Information systems development using small business computers	Bombay	National Institute for Training in Industrial Engineering, Bombay
12—23 April 1982	Production planning and control	Bombay	National Institute for Training in Industrial Engineering, Bombay
12—27 April 1982	Regional instrumentation centre traininpg rogramme	Bangalore	UGC and Indian Institute of Science, Bangalore
12 April—1 May '82	Petroleum geology and reservoir engineering	Dhanbad	Indian School of Mines.
12 April—15 May '82	Advanced mine surveying technology	Dhanbad	Indian School of Mines.
13—17 April 1982	Utilisation of rice husk for energy production	Delhi	Management Services, National Productivity Council, Lodi Road, New Delhi-110003
13—23 April 1982	XIX IMO's course under multipurpose worker scheme	New Delhi	Department of Education and Training, National Institute of Health and Family Welfare, Near DDA Flats, Munirka, New Delhi-110067
13 April—16 May '82	Summer programme for young people on frontiers in science and technology	Bangalore	Indian Institute of World Culture, Bangalore

Date	Topic	Venue	Host Institution/s
15—16 April 1982	National seminar on building materials—their science and technology	New Delhi	Central Building Research Institute Roorkee., Indian National Science Academy, New Delhi and the Institution of Engineers (India), Delhi Centre.
16 April—1 May'82	III WHO collaborative country course in Health planning	New Delhi	Department of Planning and Evaluation, National Institute of Health and Family Welfare, Near DDA Flats, Munirka, New Delhi 110067
17—18 April 1981	Postgraduate update conference on Ichemic heat disease and hypertension	New Delhi	AIIMS, New Delhi
19—23 April 1983	Short term course on "Applications of remote sensing in water resources studies	Bombay	CSRE, IIT Bombay
19—24 April 1982	Training programme for fertiliser sales representatives (Southern region of FAI)	Coimbatore	FAI, New Delhi
19—30 April 1983	Quality control	Bombay	National Institute for Training in Industrial Engineering, Bombay
19 April—1 May '82	Short term course in Applied numerical techniques for Engineers with Fortran case studies	Bangalore	QIP and Indian Institute of Science, Bangalore.
19 April—22 May'82	IV Course for district extension and media officers	New Delhi	Department of Communication, National Institute of Health and Family Welfare, New Delhi-110067
20—23 April 1982	Seminar on establishment and management of joint ventures abroad	New Delhi	Management Development Institute, New Delhi; Indian Investment Centre
23—24 April 1982	Seminar on "Accelerating the pace of fertiliser consumption (Northern region of FAI)	New Delhi	FAI, Near JNU, New Delhi-110057
23 April—25 May '82	Seminar programme in Electronics for young people	Bangalore	Indian Institute of World Culture, Bangalore; and IETE, Karnatak, Branch.
25 April—16 May '82	Short-term course in rock mechanics	New Delhi	Department of Civil Engineering, IIT, New Delhi-110016
26—27 April '82	Seminar on acute hepatic failure—pathological and clinical aspects	New Delhi	AIIMS, New Delhi
26—30 April 1982	Budgetary control	Bombay	National Institute for Training in Industrial Engineering, Bombay.
26—30 April 1982	Motivation techniques	Bombay	National Institute for Training in Industrial Engineering, Bombay.
26—30 April 1982	Workshop on corporate planning	Bombay	National Institute for Training in Industrial Engineering, Bombay.
26 April—1 May '82	Low cost devices for improving productivity	Bombay	Regional Directorate, NPC, Bombay
26 April—15 May '82	A course on microprocessors principals and applications	Bangalore	UGC and Indian Institute of Science, Bangalore
30 April—13 May '82	Measurements and instrumentation	Roorkee	University of Roorkee
30 April—13 May '82	Process utilities services	Roorkee	University of Roorkee
Last week of April '82	Human resource development	Baroda	Institute of Applied Manpower Research, IP Estate, New Delhi; and Railway Staff College, Baroda.
Last week of April '82	Workshop on wages and productivity	New Delhi	Institute of Applied Manpower Research and Bureau of Public Enterprises, New Delhi
April 1982	Agriculture, chemistry and man	Allahabad	Natonal Academy of Science, India, 5 Lajpat Rai Road, Allahabad 211002
April 1982	Chemistry and industry in Orissa	Sambalpur	Department of Chemistry, Sambalpur University, Jyoti Vihar, Burla, Sambalpur-768017
April 1982	Dealers training programme	Burdwan/ Birbhum	Fertiliser Association of India, Near JNU, New Delhi-110067
April 1982	Dealers training programme	Indore	Fertiliser Association of India, Near JNU, New Delhi-110067
April 1982	Salesmen	Bangalore	Fertilizer Association of India, Near JNU, New Delhi-110067
April/May 1982	Ayurvedic Research on gastrointestinal disorders	Jamnagar	Gujrat Ayurved University Jamnagar 361001
April/May 1982	Refresher programme for senior marketing executives	New Delhi/ Bangalore	Fertiliser Association of India Near JNU, New Delhi-110067

Date	Topic	Venue	Host Institution/s
April/May 1982	Scientific research seminar on gastrointestinal disorders	Jamnagar	Institute for Postgraduate Training and Research, PO Box 504, Jamnagar 361008
April/May 1982	Symposium on popularising ayurvedic education	Jamnagar	Institute for Postgraduate Training and Research, Jamnagar
2 May 1982	Seminar on student and faculty evaluation	Ahmedabad	National Institute of Design, Ahmedabad.
2—5 May 1982	Workshop on Approaches to the understanding of hyperthermia	New Delhi	AIIMS, New Delhi
3—15 May 1982	Surface mining	Dhanbad	Indian School of Mines
3—15 May 1982	Training in motivational techniques for health and family welfare programme management	New Delhi	Department of Social Sciences National Institute of Health and Family Welfare, New Delhi 110067
4—6 May 1982	Oil seed and oil extraction	Ahmedabad	Regional Directorate, NPC, No. 3 Brahmin Mitra Model Society, Sheth Mangaldas Road, Ellisbridge, Ahmedabad 380006.
6—9 May 1982	Human relations—an evaluation of managerial elements	Madras	Management Development Programme, Indian Institute of Management Studies, A-401 Defence Colony, New Delhi-110024
6—9 May 1982	Seminar on repair and maintenance of biomedical equipment in hospitals, medical institutions and primary health centres	New Delhi	AIIMS, New Delhi.
6—12 May 1982	Management of working capital	Srinagar	Management Development Institute, New Delhi.
9 May—1 June'82	Organic matter recycling.	Hissar	Department of Microbiology, Post-graduate studies, Hissar.
10—11 May 1982	Workshop on indigenous technology for paediatric patient-care services.	New Delhi	AIIMS, New Delhi
10—14 May 1982	Corporate energy plans	Kodaikanal	Regional Directorate, National Productivity Council, 40 Montieth Road Egmore, Madras 600 008
10—15 May 1982	Intensive workshop for school librarians	Bangalore	Indian Institute of World Culture, PB No. 402, 6 Shri B.P. Wadin Road, Basavangudi, Bangalore 560 004
10—24 May 1982	Summer Institute for Japanese language technical translators	Bangalore	UGC and Indian Institute of Science, Bangalore
11—14 May 1982	Utilization of rice bran for edible oil production	Delhi	Management Services, NPC, New Delhi
12—17 May 1982	Management Information Systems	Srinagar	Regional Directorate, Chandigarh
12 May—5 Jun 1982	An education programme on microprocessors	Bangalore	Electronics Commission and Indian Institute of Science, Bangalore.
13—15 May 1982	Workshop on dermatologic photobiology	New Delhi	AIIMS, New Delhi
2nd week of May '82	Programme on transport economics	New Delhi	Institute of Applied Manpower Research New Delhi
17—22 May 1982	Surface mine planning and desgin	Dhanbad	Indian School of Mines
17—29 May 1982	Fortran programming and numerical methods	Roorkee	University of Roorkee
17—29 May 1982	750 kv high voltage DC and 750 KV high voltage AC Transmission	Roorkee	University of Roorkee
17—29 May 1982	Stock preparation and paper making	Roorkee	University of Roorkee
18—22 May 1982	Seminar on formulating personnel policies for optimising human resources	Srinagar	Management Development Institute, New Delhi
18 May—1 June 1982	Short-term course on process engineers	New Delhi	Chemical Department, IIT, New Delhi
19—25 May 1982	Followup workshop in health economics and management	New Delhi	Department of Planning and Evaluation NIHFW, New Delhi 110067
19—26 May 1982	First programme on manpower forecasting	New Delhi	Institute of Applied Manpower Research, I.P. Estate, New Delhi
20—26 May 1982	Eight workshop on strategic aspects of corporate tax planning	Srinagar	Management Development Institute, New Delhi.
24 May—12 June 1982	Petroleum production practices	Dhanbad	Indian School of Mines
27 May—3 June 1982	Thirteenth programme on key areas in financial management	Srinagar	Management Development Institute, New Delhi
31 May—5 June 1982	Participative management	Simla	Regional Directorate NPC, Chandigarh
31 May—12 June 1982	Computer applications in mining industry	Dhanbad	Indian School of Mines.
31 May—12 June 1982	Geological and geotechnical aspect of mine planning	Dhanbad	Indian School of Mines.

Date	Topic	Venue	Host institution/s
31 May—25 June'82	Workshop on agricultural communication	Ahmedabad	National Institute of Design Paldi, Ahmedabad 380 007
May 1982	Dealers training programme	Anand	Fertiliser Association of India
May 1982	Orientation course— agricultural graduates	Vellayani (Trivandrum)	Fertiliser Association of India
May/June 1982	Maintenance engineers	Bangalore/ Madras	Fertiliser Association of India Near JNU, New Delhi-110067
May—June 1982	Summer institution research methodology in political science	Annamalainagar	Department of Political Science, Annamalai University and UGC
1—7 June 1982	World environment day observances through Talks, Exhibitions and discussions	Bangalore	Indian Institute of World Culture Bangalore
1—30 June 1982	Workshop on Canadian literature	Dharwad	Department of English, Karnataka University, Dharwad
2—12 June 1982	Village planning process strategies	Roorkee	University of Roorkee
2—15 June 1982	Nuclear techniques applied to hydrology and hydrogeology	Roorkee	University of Roorkee.
3—30 June 1982	Recent advances in plant tissues culture	Hissar	Department of Genetics, Post-graduate Studies, Hissar.
4—10 June 1982	Tenth Programme on Fundamentals of managerial finance or essentials of financial management for non-financial executives.	Srinagar	Management Development Institute, New Delhi
6—13 June 1982	Corporate planning	Mussoorie	Management Service, NPC, New Delhi
6—20 June 1982	Applications of thermal sciences to rural problems	Bangalore	QIP and Indian Institute of Science, Bangalore.
6—20 June 1982	A course on space science technology and applications	Bangalore	QIP and Indian Institute of Science, Bangalore
7—12 June 1982	Integrated materials management	Bombay	Regional Directorate, National Productivity Council, Novelty Chambers, 7th floor, Grant Road, Bombay-7
7 June—6 July 1982	Integrated weed management technology	Hissar	Department of Agronomy, Post-graduate studies, Hissar
8—9 June 1982	Materials conservation—copper and zinc	Calcutta	Regional Directorate, NPC, No. 11, Lady Curzon Road, Bangalore 560001
14—18 June 1982	Industrial boilers—design, operation and maintenance	Madras	Regional Directorate, NPC, Madras
14—19 June 1982	Working capital management	Bombay	NITIE, Bombay
14—22 June 1982	Computers for non-computer managers	Srinagar	Management Development Institute, New Delhi.
14—24 June 1982	Study meeting on organic fertilizers (recycling of organic matter) (APO Programme)	Bangalore	Management Service, NPC, New Delhi
14—25 June 1982	PERT/CPM	Bombay	NITIE, Bombay
14—25 June 1982	Plant layout and materials handling	Bombay	NITIE, Bombay
14—26 June 1982	Underground coal-face machines	Dhanbad	Indian School of Mines.
18 June—1 July 1982	Design of machine foundations (including heavy rotating machines)	Roorkee	University of Roorkee
18 June—1 Julo 1982	Performance appraisal and human relations	Roorkee	University of Roorkee
21—26 June 1982	Computer-based PPC systems	Bombay	NITIE, Bombay
21—26 June 1982	Information systems administration	Bombay	NITIE, Bombay
21—27 June 1982	A course and seminar on power electronics in railways	Bangalore	Electronics Commission and Indian Institute of Science, Bangalore
21 June—17 July 1982	Training course on information storage and retrieval in Health and Family welfare	New Delhi	National Documentation Centre NIHFW, New Delhi-110067
22—26 June 1982	Remote sensing techniques as applied to earth sciences	Bombay	CSRE, IIT Bombay
24—26 June 1982	Seminar on educational methods in physiology for medical students	New Delhi	AIIMS, New Delhi
24—26 June 1982	Symposium on teaching physiology: trends and tools	New Delhi	AIIMS, New Delhi
26 June—2 July 1982	Executive effectiveness	Srinagar	Regional Directorate, National Productivity Council, 1037 Sector-27B, Chandigarh-160019
28 June—2 July 1982	Organization feedback—concepts and problems	Agra	Management Development Programme, Indian Institute of Management Studies, A-401 Defence Colony, New Delhi 110024
28 June—3 July 1982	Optimisation—for engineers and scientists	Bombay	NITIE, Bombay
28 June—3 July 1982	Spare parts management	Bombay	NITIE, Bombay
29 June—3 July 1982	Management of Computer Centres	Srinagar	Management Development Institute, New Delhi

Date	Topic	Venue	Host Institution/s
June 1982	Conference on the role of parent/teacher associations	Bombay	Indian Council for Mental Health (Hygiene) and the Indian Institute of Mental Health and Human Relations, Eros Building, 3rd floor 42 Maharshi Karve Marg, Bombay-400020
June 1982	Saturday Workshop on Psycho-sexual development and its relationship to integration	Bombay	Indian Council for Mental Health (Hygiene) and The Indian Institute of Mental Health and Human Relations, Bombay

Subject—Index

Date	Topic	Venue	Host Institution/s
Aeronautical Engineering			
7—10 April 1982	Aerodynamics symposium of ARDB	Bombay	Aero Engineering Department IIT, Bombay
Agricultural Sciences			
April 1982	Agriculture, chemistry and man	Allahabad	National Academy of Sciences-India, 5 Lajpat Rai Road, Allahabad 211 002
Early April 1982	All India Rice and Research Workshop	Bhubaneshvar	All India Coordinated Rice Improvement Project, Hyderabad
7 June—6 July 1982	Integrated Weed Management Technology	Hissar	Department of Agronomy, Postgraduate Studies, Hissar.
4—6 May 1982	Oil Seed and Oil Extraction	Ahmedabad	Regional Directorate, NPC, No. 3, Brahmin Mitra Mandal Society, Sheth Mangaldas Rd Ellis Bridge, Ahmedabad 380 006
May 1982	Orientation Course—Agricultural graduates	Vellayani (Trivandrum)	Fertiliser Association of India
23—24 April 1982	Seminar on "Accelerating the Pace of Fertiliser Consumption" (Northern Region of FAI)	New Delhi	FAI, Near JNU, New Delhi-110057
14—24 June 1982	Study Meeting on Organic Fertilizers (Recycling of Organic Matter) (APO Programme)	Bangalore	Management Services, NPC, New Delhi
19—24 April 1982	Training Programme for Fertiliser Sales Representatives (Southern Region of FAI)	Coimbatore	FAI, New Delhi
11—14 May 1982	Utilization of Rice Bran for Edible Oil Production	Delhi	Management Services, NPC, New Delhi
13—17 April 1982	Utilisation of Rice Husk for Energy Production	Delhi	Management Services, National Productivity Council, Lodi Road, New Delhi-110003
31 May—25 June 1982	Workshop on agricultural communication	Ahmedabad	National Institute of Design, Paldi, Ahmedabad 380007
Computer Sciences			
31 May—12 June 1982	Computer Applications in Mining Industry	Dhanbad	Indian School of Mines
12—18 April 1982	Computer-assisted Financial Management	New Delhi	Management Development Instt New Delhi
21—26 June 1982	Computer-based PPC systems	Bombay	NITIE, Bombay
14—22 June 1982	Computers for Non-commputer managers	Srinagar	Management Development Instt, New Delhi
26 April—15 May 1982	A course on microprocessors—principles and applications	Bangalore	UGC and Indian Institute of Service, Bangalore.
12 May—5 June 1982	An education programme on microprocessors	Bangalore	Electronics Commission and Indian Institute of Science, Bangalore
17—29 May 1982	Fortran Programming and Numerical methods	Roorkee	University of Roorkee
12—23 April 1982	Information systems development using small business computers	Bombay	NITIE, Bombay
19 April—1 May 1982	Short term course in applied numerical techniques for Engineers with Fortran case studies	Bangalore	QIP and Indian Institute of Science, Bangalore

Date	Topic	Venue	Host Institution/s
Corporate Planning			
10—14 May 1982	Corporate Energy plans	Kodaikanal	Regional Directorate, National Productivity Council, 40 Montieth Road, Egmore, Madras 600 008
6—13 June 1982	Corporate Planning	Mussoorie	Management Services, NPC New Delhi
26—30 April 1982	Workshop on Corporate Planning	Bombay	National Institute for Training in Industrial Engineering, Bombay
Education			
4—5 April 1982	All Gujarat Teachers Conference	Ahmedabad	Gujarat University., P.B. No. 4010, Ahmedabad 380 009
June 1982	Conference on the role of parent/teacher associations	Bombay	Indian Council for Mental Health (Hygiene) and The Indian Institute of Mental Health and Human Relations, Eros Building, 3rd floor, 42 Maharshi Karve Marg, Bombay-400 020
2 May 1982	Seminar on student and faculty evaluation	Ahmedabad	National Institute of Design Ahmedabad
Electrical and Electronic Engineering			
17—29 May 1982	750 kv High voltage DC and 750 kv High voltage AC Transmission	Roorkee	University of Roorkee
21—27 June 1982	A course and seminar on Power Electronics in Railways	Bangalore	Electronics Commission and Indian Institute of Sc., Bangalore
26 April—15 May 1982	A course on microprocessors—principles and applications	Bangalore	UGC and IIS, Bangalore
12 May—5 June 1982	An Education Programme on Microprocessors	Bangalore	Electronics Commission and IIS, Bangalore
5—10 April 1982	Maintenance of Electrical Equipments in Mines	Dhanbad	Indian School of Mines
23 April—25 May 1982	Summer Programme in Electronics for young people.	Bangalore	Indian Institute of World Culture, Bangalore; and IETE, Karnataka Branch
Engineering			
May/June 1982	Maintenance Engineers	Bangalore/ Madras	Fertilizer Association of India, Near JNU, New Delhi 110067
18 May—1 June 1982	Short-term course on process engineers	New Delhi	Chemical Department, IIT New Delhi
28 June—3 July 1982	Optimisation—for engineers and scientists	Bombay	NITIE, Bombay
Financial Management			
26—30 April 1982	Budgetary control	Bombay	National Institute for Training in Industrial Engineering, Bombay
12—18 April 1982	Computer-assisted financial management	New Delhi	Management Development Institute, New Delhi.
20—26 May 1982	Eighth Workshop on Strategic aspects of Corporate Tax Planning	Srinagar	Management Development Institute, New Delhi.
4—10 June 1982	Tenth programme on Fundamentals of Managerial Finance or Essentials of Financial Management for Non-financial executives	Srinagar	Management Development Institute, New Delhi
6—12 May 1982	Management of Working Capital	Srinagar	Management Development Institute, New Delhi
27 May—3 June 1982	Thirteenth Programme on Key Areas in Financial Management	Srinagar	Management Development Institute, New Delhi
14—19 June 1982	Working Capital Management	Bombay	NITIE, Bombay
Industry			
April 1982	Chemistry and Industry in Orissa	Sambalpur	Department of Chemistry, Sambalpur University.
5—10 April 1982	R & D Management	Bombay	NITIE, Bombay
Instrumentation			
30 April—13 May 1982	Measurements & Instrumentation	Roorkee	University of Roorkee.
12—27 April 1982	Regional Instrumentation Centre Training Programme	Bangalore	UGC and Indian Institute of Science, Bangalore

Date	Topic	Venue	Host Institution/s
Language			
10—24 May 1982	Summer Institute for Japanese Language Technical Translators	Bangalore	UGC and Indian Institute of Science, Bangalore
Law			
9—11 April 1982	Women and the Law	Amritsar	Law Department, Guru Nanak Dev University, Amritsar-143005
Library and Information Science			
21—26 June 1982	Information systems administration	Bombay	NITIE, Bombay
10—15 May 1982	Intensive workshop for school librarians	Bangalore	Indian Institute of World Culture, PB No. 402, 6 Shri B.P. Wadin Road, Basavangudi, Bangalore 560 004
21 June—17 July 1982	Training course on Information Storage and retrieval in Health & Family Welfare	New Delhi	National Documentation Centre, NIHFW, New Delhi
Literature			
1—30 June 1982	Workshop on Canadian literature	Dharwad	Department of English, Karnataka University, Dharwad.
Management			
14—22 June 1982	Computers for Non-computer Managers	Srinagar	Management Development Institute, New Delhi
19—26 May 1982	First Programme on Manpower Forecasting	New Delhi	Institute of Applied Manpower Research, IP Estate, New Delhi
12—23 April 1982	Information systems development using small business computers	Bombay	National Institute for Training in Industrial Engineering, Bombay
19—30 April 1982	Quality control	Bombay	National Institute for training in Industrial Engineering, Bombay
3—4 April 1982	Maintenance management	Bombay	Maths Department, IIT Bombay
12—17 May 1982	Management Information systems	Srinagar	Regional Directorate, Chandigarh
29 June—3 July 1982	Management of Computer Centres	Srinagar	Management Development Institute, New Delhi
26—30 April 1982	Motivation Techniques	Bombay	National Institute for Training in Industrial Engineering, Bombay
12—13 April 1982	Ninth National Management convention: Management of Inflation and growth	New Delhi	All India Management Association, Management House, 14 Institutional Area, Lodi Road, New Delhi, 110003
28 June—2 July 1982	Organization feedback—concepts and problems	Agra	Management Development Programme, Indian Institute of Management Studies, A-401, Defence Colony, New Delhi-110024
14—25 June 1982	PERT/CPM	Bombay	NITIE, Bombay
8—9 April 1982	Predictive maintenance	Bombay	Regional Directorate, NPC, Bombay
20—23 April 1982	Seminar on Establishment and Management of Joint Ventures Abroad	New Delhi	Management Development Institute, New Delhi; Indian Investment Centre
Manufacturing Technology			
8—9 June 1982	Materials conservation— copper and zinc	Calcutta	Regional Directorate, NPC, Neil, Lady Curzon Road, Bangalore 560 001
16—17 April 1982	National seminar on building materials— Thai Science and Technology	New Delhi	INSA, Institution of Engineers' (India) Delhi Centre and CBRI, Roorkee
7—27 April 1982	Prestressed Concrete	Roorkee	University of Roorkee
17—29 May 1982	Stock preparation and paper making	Roorkee	University of Roorkee
Marketing			
May 1982	Dealers Training Programme	Anand	Fertilizer Association of India
April 1982	Dealers Training Programme	Burdwan/ Birbhum	Fertilizer Association of India Near JNU, New Delhi 110067

Date	Topic	Venue	Host Institution/s
April 1982	Dealer Training Programme	Indore	Fertilizer Association of India
April/May 1982	Refresher Programme for Senior Marketing Executives	New Delhi/ Bangalore	Fertilizer Associaition of India
April 1982	Salesman	Bangalore	Fertilizer Association of India
Materials Management			
12—17 April 1982	Inventory Management Workshop	Bombay	National Institute for Training in Industrial Engineering, Bombay
7—12 June 1982	Integrated Materials Management	Bombay	Regional Directorate National, Productivity Council, Novelty Chambers, 7th floor, Grant Road, Bombay 400 007
14—25 June 1982	Plant Layout and materials handling	Bombay	NITIE, Bombay
28 June—3 July 1982	Spare parts management	Bombay	NITIE, Bombay
7—27 April 1982	Combustion and I.C. Engines	Roorkee	University of Roorkee
18 June—1 July 1982	Design of machine foundations (including heavy rotating machines)	Roorkee	University of Roorkee
14—18 June 1982	Industrial boilers—design, operation and maintenance	Madras	Regional Directorate, NPC, Madras
14—26 June 1982	Underground coal-face machines	Dhanbad	Indian School of Mines
Medicine and Public Health			
April/May 1982	Ayurvedic research on gastro-intestinal disorders	Jamnagar	Gujarat Ayurved University, Jamnagar 361001
16 April—1 May 1982	III WHO Collaborative country course in Health Planning	New Delhi	Department of Planning & Evaluation, National Institute of Health and Family Welfare, Near DDA Flats, Munirka, New Delhi 110067
19 April—22 May 1982	IV Course for district extension and media officers	New Delhi	Department of Communication National Institute of Health and Family Welfare, New Delhi 110067
13—23 April 1982	XIX IMO's Course under multipurpose worker scheme	New Delhi	Department of Education & Training, National Institute of Health and Family Welfare, Near DDA Flats, Munirka, New Delhi-110067
19—25 May 1982	Followup workshop in health economics and management	New Delhi	Department of Planning and Evaluation NIHFW, New Delhi-110067
17—18 April 1982	Postgraduate update conference on Ichemic heart disease and hypertension	New Delhi	AIIMS, New Delhi
June 1982	Saturday Workshops on Psycho-sexual development and its relationship to integration	Bombay	Indian Council for Mental Health (Hygiene) and the Indian Institute of Mental Health and Human Relations, Bombay
April—May 1982	Scientific Research Seminar on Gastro-Intestinal Disorders	Jamnagar	Institute for Postrgraduate Training and Research, PO Box 504, Jamnagar-361008
26—27 April 1982	Seminar on Acute Hepatic Failure—Pathological and Clinical Aspects	New Delhi	AIIMS, New Delhi
24—26 June 1982	Seminar on Educational Methods in Physiology for Medical Students	New Delhi	AIIMS, New Delhi
6—10 April 1982	Seminar on Mathematical and Engineering Concepts in Biological and Medical Research	Bangalore	CEDT and Indian Institute of Science Bangalore
6—9 May 1982	Seminar on Repair and Maintenance of Biomedical Equipment in Hospitals, Medical Institutions and Primary Health Centre	New Delhi	AIIMS, New Delhi
April—May 1982	Symposium on Popularising Agriculture Educacation	Jamnagar	Institute for Postgraduate Training and Research, Jamnagar
24—26 June 1982	Symposium on Teaching Physiology: Trends and tools	New Delhi	AIIMS, New Delhi
21 June—17 July 1982	Training course on Information storage and retrieval in Health and Family Welfare	New Delhi	National Documentation Centre NIHFW, New Delhi-110067

Date	Topic	Venue	Host Institution/s
3—15 May 1982	Training in Motivational techniques for Health and Family Welfare Programme Management	New Delhi	Department of Social Sciences National Institute of Health and Family Welfare, New Delhi-110067
2—5 May 1982	Workshop on Approaches to the Understanding of Hyperthermia	New Delhi	AIIMS, New Delhi
13—15 May 1982	Workshop on Dermatology Photobiology	New Delhi	AIIMS, New Delhi
10—11 May 1982	Workshop on Indigenous Technology for paediatric patient-care services	New Delhi	AIIMS, New Delhi
12—14 April 1982	Workshop on Medical Education Technology	New Delhi	AIIMS, New Delhi
4—10 April 1982	Workshop on Recent advances in paediatrics	New Delhi	AIIMS, New Delhi
Mining and Metallurgy			
12 April—15 May 1982	Advanced Mine Surveying Technology	Dhanbad	Indian School of Mines
31 May—12 June 1982	Computer applications in Mining Industry	Dhanbad	Indian School of Mines
31 May—12 June 1982	Geological and geotechnical aspects of mine planning	Dhanbad	Indian School of Mines
5—10 April 1982	Methods and techniques of groundwater exploration	Dhanbad	Indian School of Mines
12 April—1 May 1982	Petroleum geology and reservoir engineering	Dhanbad	Indian School of Mines
24 May—12 June 1982	Petroleum production practices	Dhanbad	Indian School of Mines
22—26 June 1982	Remote sensing techniques as applied to earth sciences	Bombay	CSRE, IIT Bombay
25 April—16 May 1982	Short-term course in rock mechanics	New Delhi	Department of Civil Engineering IIT, New Delhi-110016
17—22 May 1982	Surface Mine Planning and design	Dhanbad	Indian School of Mines
3—15 May 1982	Surface Mining	Dhanbad	Indian School of Mines
14—26 June 1982	Underground coal-face machines	Dhanbad	Indian School of Mines
Participative Management			
12—15 April 1982	Fourth workshop on participative management with focus on workers' participation in Management	Gurgaon	Management Development Institute, Jeevan Tara Building, 5 Parliament Street, New Delhi 110001
31 May—5 June 1982	Participative management	Simla	Regional Directorate, NPC, Chandigarh
Personnel Management			
26 June—2 July 1982	Executive effectiveness	Srinagar	Regional Directorate, National Productivity Council, 1037, Sector-27B, Chandigarh-160019
12—23 April 1982	Human Relations	Bombay	National Institute for Training in Industrial Engineering, Bombay
6—9 May 1982	Human relations—an evaluation of managerial elements	Madras	Management Development Programme, Indian Institute of Management Studies, A-401 Defence Colony, New Delhi-110024
Last week of April '82	Human resource development	Baroda	Institute of Applied Manpower Research, IP Estate, New Delhi and Railway Staff College, Baroda.
18 June—1 July 1982	Performance appraisal and human relations	Roorkee	University of Roorkee
5—10 April 1982	Personnel for Non-personnel executives	Bombay	National Institute for training in Industrial Engineering, Bombay
18—22 May 1982	Seminar on formulating personnel policies for optimising human resources	Srinagar	Management Development Institute, New Delhi
Political Science			
May—June 1982	Summer Institution Research Methodology in Political Science	Annamalainagar	Department of Political Science, Annamalai University and UGC

Date	Topic	Venue	Host Institution/s
Production Management			
26 April—1 May 1982	Low cost devices for improving productivity	Bombay	Regional Directorate NPC, Bombay
5—16 April 1982	Production Management	Bombay	National Institute for Training in Industrial Engineering, Bombay
12—23 April 1982	Production planning and control	Bombay	National Institute for Training in Industrial Engineering, Bombay
Last week of April 1982	Workshop on wages and productivity	New Delhi	Institute of Applied Manpower Research and Bureau of Public Enterprises, New Delhi.
Science and Technology			
April 1982	Agriculture, Chemistry and Man	Allahabad	National Academy of Science, India, Allahabad
6—20 June 1982	Applications of Thermal Sciences to Rural Problems	Bangalore	QIP and Indian Institute of Science, Bangalore
April 1982	Chemistry and Industry in Orissa	Sambalpur	Department of Chemistry, Sambalpur University, Jyoti Vihar, Burla, Sambalpur 768017
6—20 June 1982	A course on space science technology and applications	Bangalore	QIP and Indian Institute of Science, Bangalore
15—16 April 1982	National Seminar on Building Materials their science and technology	New Delhi	Central Building Research Institute, Roorkee, Indian National Science Academy, New Delhi and the Institution of Engineers (India), Delhi Centre
7—8 April 1982	National Symposium on Manufacture of Nuclear Components	Bombay	Department of Atomic Energy, BARC, Trombay, Bombay 400 085
2—15 June 1982	Nuclear techniques applied to hydrology and hydrogeology	Roorkee	University of Roorkee
28 June—3 July 1982	Optimisation—for engineers and scientists	Bombay	NITIE, Bombay
9 May—1 June 1982	*Organic matter recycling*	Hissar	*Department of Microbiology,* Post-graduate studies, Hissar
30 April—13 May 1982	Process utilities services	Roorkee	University of Roorkee
5—10 April 1982	R & D Management	Bombay	National Institute of Training in Industrial Engineering, Bombay
3—30 June 1982	Recent advances in Plant tissues culture	Hissar	Department of Genetics, Post-graduate Studies, Hissar
6—10 April 1982	Seminar on mathematical and engineering concepts in biological and medical research	Bangalore	CEDT; & IIS, Bangalore
13 April—16 May 1982	Summer programme for young people on frontiers in science and technology	Bangalore	Indian Institute of World Culture, Bangalore
1—7 June 1982	World environment day observances through talks, exhibitions and discussions	Bangalore	Indian Institute of World Culture Bangalore
Transport Economics			
2nd week of May 1982	Programme on Transport Economics	New Delhi	Institute of Applied Manpower Research, New Delhi
Water Management			
5—10 April 1982	Methods and techniques of groundwater exploration	Dhanbad	Indian School of Mines
19—23 April 1982	Short-term course on "Applications of remote sensing in water resources studies".	Bombay	CSRE, IIT Bombay
Women's *Studies*			
9—11 April 1982	Women and the Law	Amritsar	Law Department Guru Nanak Dev University, Amritsar.

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RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Ashwani Kumar. A study of units in integral group rings of metacyclic groups. Punjab University. Prof. I.S. Luthar, Department of Mathematics, Panjab University, Chandigarh.

Physics

1. Nair, Prabha B. Second round solutions and phonon focussing in crystals. University of Kerala. Prof. K.S. Vishwanathan, Head, Department of Physics, University of Kerala, Kariavattom.

Chemistry

1. Dhingra, Pritam Lal. Chemistry of some aspects of imidobis, sulfuryl fluoride. Panjab University. Dr R.D. Verma, Reader, Department of Chemistry, Panjab University, Chandigarh.

2. Gopalakrishnan Nair, D. Oscomely bolenum complexes. University of Kerala. Dr C.P. Prabhakaran, Department of Chemistry, University of Kerala, Trivandrum.

3. Pawan Kumar. Cyclization of halogenated N-acylbenzylamines and related compounds. Panjab University. Prof. S.V. Kesar, Department of Chemistry, Panjab University, Chandigarh. Dr Paramjit Singh, Department of Chemistry, Panjab University, Chandigarh.

4. Rane, Rajshri Keshavrao. Synthetic studies on natural products. Shivaji University. Dr R.B. Mane, Reader, Department of Chemistry, Shivaji University, Kolhapur.

5. Shukla, Anjana. Physico-chemical studies of some products extracted from vigue, Solanum eucalyptus type of plants. University of Indore. Dr A.B. Sood, Head, Department of Applied Chemistry, Shri G.S. Institute of Technology and Science, Indore.

6. Sukhbir Singh. Topological features of molecules and their correlations with physico-chemical properties. Panjab University. Prof. D.V.S. Jain, Department of Chemistry, Panjab University, Chandigarh.

BIOLOGICAL SCIENCES

Anthropology

1. Mohinder Pal. Determination of blood and serum groups in keratinized and non-keratinized human tissues under varied conditions of preservation. Panjab University. Dr V. Bhalla, Reader, Department of Anthropology, Panjab University, Chandigarh. Dr V.K. Arora, Associate Director, Institute of Criminology and Forensic Science, 4E, Jhandewalan Extension, Rani Jhansi Road, New Delhi.

Marine Biology

1. Indira, B. Studies on the structure and development of accessory, respiratory organs in certain air breathing fishes of South West Coast of India. University of Kerala. Shri K.G. Padmanabhan.

2. John, Soosan. Studies on the flat fishes of South West Coast of India. University of Kerala. Dr P.A. John. Shri K.G. Padmanabhan.

3. Joshi, P. Studies on the canal neuro secretory system in certain teleosts. University of Kerala. Dr P.A. John. Shri K.G. Padmanabhan.

4. Nair, Mini. Studies on the systematics and ecology of the isopodes of the South West Coast of India. University of Kerala. Dr H. Suryanarayanan.

5. Sethu Lekshmi Bai, P.K. Kumari. Studies on the biology of certain go bioid fishes. University of Kerala. Dr H. Suryanarayanan. Shri K.G. Padmanabhan.

6. Usha, Nair, V. Studies on the fishes of the family Baginidae. University of Kerala. Dr Balakrishnan Nair. Shri K.G. Padmanabhan.

7. Ussa, P.G. Studies on the biology of the arid cat fishes of South West Coast of India. University of Kerala. Dr N. Balakrishnan Nair.

Microbiology

1. Bhalla, Tek Chand. Studies on plant endoplasmic reticulum. Panjab University. Dr D.V. Vadehra, Department of Microbiology, Panjab University, Chandigarh. Dr H.M. Dani, Department of Microbiology, Panjab University, Chandigarh.

Botany

1. Chark, Kuldip Singh. Biochemical studies on fern gametophyte. Panjab University. Dr K.K. Dhir, Reader, Department of Botany, Panjab University, Chandigarh.

2. Garg, Renu. Electrophoretic studies of the major food reserves during seed development. University of Delhi. Dr S.P. Bhatnagar, Department of Botany, University of Delhi, Delhi.

3. Harsh Mitter. Morpho-physiological studies on the effect of environment and growth regulatory substances on the rooting of stem cuttings, growth and development in some species of ficus. Panjab University. Dr K.K. Dhir, Department of Botany, Panjab University, Chandigarh.

4. Jasmeet Kaur. Physiological studies on some cellulolytic fungi. Panjab University. Dr G.S. Rawla, Reader, Department of Botany, Panjab University, Chandigarh.

5. Kokate, Pramod Shanker. An aspect of physiological studies in rice. Shivaji University. Dr B.A. Hegde, Department of Botany, Shivaji University, Kolhapur.

6. Somanathan Pillai, P. Studies on HMS induced mutations in Cypsium annuum L. University of Kerala. Dr Susan Abraham, Department of Botany, University of Kerala, Kariavattom.

7. Vasudeva, Srishti Pal. Reproductive biology of some hetero-stylous species and Dalbergia sissoo Roxb. Panjab University. Dr T.B. Sareen, Reader, Department of Botany, Panjab University, Chandigarh.

Zoology

1. Agrawal, Pratibha. A study of contact dermatitis in Indore region. University of Indore. Dr N.C. Sethi, Lecturer, Department of Skin and Venereal Diseases, M.G.M. Medical College and M.Y. Hispital, Indore.

2. Amarjit Kaur. Morphological and histochemical studies on the brain of four teleost fishes. Panjab University. Dr K.K. Tandon, Department of Zoology, Panjab University, Chandigarh. Dr M.L. Sareen, Department of Zoology, Panjab University, Chandigarh.

3. Awasthi, Arvind Kumar. Histopathology and biochemistry of a few tissues of Clarias batrachus exposed to aminoazodyes. Meerut University.

4. Chander Sakher. Histology and histo-chemistry of the brain of Labeo calbasu (Hamilton), Labeo Gosius (Hamilton), Chela gora (Hamilton) and Puntius sarana (Hamilton) in relation to their habits and habitats. Panjab University. Dr K.K. Tandon, Department of Zoology, Panjab University, Chandigarh, Dr (Mrs) Usha Kanwar, Department of Zoology Panjab University, Chandigarh.

5. Grover, Anjana. Studies on the metabolic degradation of DDT and HCH in mammalian system: Role of protein deficiency and intestinal micro-flora. Meerut University.

6. Gupta, Neelam. Studies on toxicity of endosulfan and ragor to an experimental fish Clarias batrachus (Linn). Meerut University.

7. Jain, Nisha. Histochemical and cytological studies

of the Saccus vasculosus of some fishes. University of Saugar. Dr V.N. Sahay.

8. Jain, Subodh Kumar. Studies on oxygen consumption of the pituitary of rats and its correlation with cholesterol and electrolyte concentration under the influence of amino acids. University of Saugar. Dr R.K. Srivastava.

9. Jaish, Sadhana. Morphological, physiological studies and the effect of cortisone and some hormones on the blood of a bird. University of Indore. Dr G.K. Dube, Lecturer, Department of Zoology, Holkar Science College, Indore.

10. Jalil, Ashraf. Studies on the histomorphology of the nervous system and post embryonic differentiation of association centres in the brain of Lohita grandis Gray (Heteroptera: Pyrrhocoridae). Meerut University.

11. Kaushal, D.K. Studies on the aquatic fauna of Gobindsagar reservoir in relation to fish and fisheries. Meerut University.

12. Khan, Shamim Bano. Neuroendocrine control of fat body metabolism in some insects. University of Saugar. Dr Smeeta Banerjee.

13. Promila Rani. Histogenesis of the brain of Dysdercus koenigii and effect of two chemosterilants on its neuro-gonadal axis. Panjab University. Dr (Mrs) Usha Kanwar. Department of Zoology, Panjab University, Chandigarh. Dr S.K. Taneja, Department of Zoology, Panjab University, Chandigarh.

14. Raghavendra Rao, D. Studies on toxic effects of certain mercurial compounds in a fresh water fish Channa punctatus. Meerut University.

15. Rana, S.V.S. Studies on certain rodents in toxic environment. Meerut University.

16. Sharma, K.P. Ecological studies on reservoir fisheries in Western UP and Rajasthan. Meerut University.

17. Sharma, Subhadra. Studies on corpuscular structures of human blood effected by acute and chronic leukemia. Meerut University.

18. Shukla, Padmaja. Hypothalamo-neurohypophysial system and reproduction of some fresh water teleost fishes with special reference to the effects of pollutants. University of Saugar. Dr A.K. Raizada.

19. Siddiqui, Abad Ahmad. Studies on environmental toxicity of certain organophosphate and carbamate compounds with special reference to fresh water fish Channa punctatus Block. Meerut University.

20. Singhi, Rakesh. Effect of cannabis smoking on the excretion of neutral 17 ketosteroids and other compounds in the urine of man. University of Saugar. Dr R.K. Srivastava.

21. Singh, Prem Pal. Studies of lance nematodes of millet of District Meerut. Meerut University.

22. Sood, Satinder. Studies on brain of certain fresh water fishes. Meerut University.

23. Suneeta Kumari. Studies on toxicity of heavy metals to Channa punctatus with special reference to nickel and chromium. Meerut University.

24. Tiwari, Sunil K. Studies on metacercariae and adult trematodes of fishes. Meerut University.

25. Tomar, V.K. Behavioural ecology of the common house crow, Corvus splendens (Viellet) with a critical evaluation of its economic status in agriculture, Distt. Meerut UP. Meerut University.

26. Tyagi, P.K. Studies on histological and biochemical changes induced by pentachlorophenol (pcp) in Notopterus (Pallas). Meerut University.

27. Tyagi, Satya Deo. Histochemical studies on the effects of known spermicidal plant extracts on gonads and other tissues in albino rats. Meerut University.

28. Tyagi, Sunil Kumar. Azodyes toxicity on a few tissues of an Indian teleost fish Heteropneustes fossilis. Meerut University.

29. Vinay Kumar. External morphology and ecology of Aphidius rapae (Curtis) together with studies on biological control of its host, Lipaphis erysimi (Kalt). Meerut University.

30. Wadhwa, Sandhya. Toxicity of lithium and an azodye to Channa punctatus : A histopathological, biochemical and histochemical study. Meerut University.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Agarwal, Manmohan Das. A study of the generalized Fibonacci Sequences. Vikram University.

2. Balagondar, Puttappa Mallappa. Electrically conducting viscous flow and some problems in non-Newtonian flow. Karnataka University.

3. Chattopadhyay, Haimaboti. Some results on fixed joints in metric Banach spaces. University of Burdwan.

4. Datta, Madhabi. On some problems of singular potentials in quantum mechanics. University of Calcutta.

5. Kulkarni, Shripad Rajaram. Some problems connected with univalent functions. Shivaji University.

6. Mishra, Sashikanta. Sub-linear functionals and strong almost convergence. Sambalpur University.

7. Om Prakash. On job-shops scheduling problems with transportation times of jobs. Garhwal University.

8. Raju, K. Venkatapathi. Problems on polar fluid flows. Kakatiya University.

9. Sharma, Sanwar Mall. Studies on the non-linear vibrations of a projectile. University of Poona.

10. Singh, Arbind Kumar. A study on the differential geometry of Finsler and Kropian spaces. University of Gorakhpur.

11. Singh, Kamal. On unsteady MHD laminar boundary layer theory. Banaras Hindu University.

12. Sihna, Satya Narain Prasad. A study in spectrum and spectral sets of operators. Magadh University.

13. Srivastava, Anand Prakash. Contributions to summability methods of function. University of Gorakhpur.

14. Umamaheswara Rao, Velagapudi. Certain investigations in scaler-tensor theories of gravitation. Andhra University.

Physics

1. Bonde, Harichand Pandurang. Study of positron annihilation and compton profile in solids. Vikram University.

2. Chakrabarti, Syamal Kumar. Studies on properties of ionic crystals with special reference to polymorphic phase transition. University of Calcutta.

3. Das, Jyotirmay. Replication of a standard DNA mycoplasma virus. **D.Sc.** University of Calcutta.

4. Krishna Rao, Dora Atchuta Venkata. Some studies on radiometeors using VHF forward scatter technique Andhra University.

5. Mohanan Pillai, K. Investigations on the growth of $PbCo_3$ $CaCo_3$ and $MnCo_3$ crystals in gel systems and the study of Liesegang Phenonmena. University of Kerala.

6. Noor Mohammad. New development in Physics : Chemical and photo-physical phenomena in solids and molecules. **D.Sc.** University of Calcutta.

7. Panwar, Ved Pal Singh. A study of some environ-

mental effects on heavy ion tracks in soda glass detectors. Kurukshetra University.

8. Patil, Channabasav Gurulingappa. A study of transport properties in ferromagnetic semi-conductors. Karnatak University.

9. Purohit, Kedar Datt. Study of fields associated with tachyons. Garhwal University.

10. Raibagkar, Liladhar Jinwarsa. Structural ferroelectric study of niobium containing perovskites. Marathwada University.

11. Rajesh Mohan. Space and time-dependent studies of neutron transport in fast uranium assemblies. University of Delhi.

12. Rajeshwar Nath. Residual interaction effects in spectra of odd-odd deformed nuclei. Banaras Hindu University.

13. Saraf, Kishor Bansilal. Growth and characterization of hydrothermally grown quartz crystals. Sardar Patel University.

14. Saxena, Ragini. Modulation spectroscopy in partially coherent fields of arbitrary intensity. University of Hyderabad.

15. Sehra, Joginder Singh. Studies on the ionospheric propagtaion characteristics of VLF, LF, MF and HF radio waves. University of Calcutta.

16. Sitaram, B.R. Geometric quantization and UIR's of semisimple lie groups. University of Delhi.

17. Subhash, N. Development of parametric studies of pulsed nitrogen and Q switched Nd : glass lasers and some of their applications. University of Cochin.

18. Surendra Singh. Ultrasound generation and propagation in hard tissues. Jawaharlal Nehru University.

19. Vishnoi, Savita. Physico-chemical and catalytic properties of mordenite and mordenite based catalysts. Garhwal University.

Chemistry

1. Aggarwal, Anita Rani. Polarographic studies on some ternary complexes. University of Delhi.

2. Anand, Nand Kishore. Phytochemical studies on Apium petroselinum seeds and Mangifera indica flowers. University of Delhi.

3. Arora, Madhu Bala. Studies on the effect of acetylation on gluing of timbers. Garhwal University.

4. Awode, Mahendra Ramdas. Studies on the transport properties of aqueous solutions. Nagpur University.

5. Aziz Bhai. Studies in pesticides. Vikram University.

6. Basu, Bratati. Structure and synthesis of heterocyclic compounds. University of Calcutta.

7. Birendra, Laishram. Incidence and etiology of urolithiasis in Manipur. Gauhati University.

8. Dandia, Anshu. Studies on possible psychotropic agents. University of Rajasthan.

9. Datt, Bimalbhushan. Studies on glycoproteins (mucin) of submaxillary gland. University of Calcutta.

10. Dobhal, Mahabeer Prasad. Chemical investigation of medicinal plants of Garhwal Region. University of Rajasthan.

11. Dua, Devender Mohan. Synthetic studies in terpenoids. Panjab University.

12. Ghosh, Subhalakshmi. Studies in anomalous electrolysis. University of Calcutta.

13. Gupta, Baldev Raj. Kinetics and mechanism of solid state reactions. University of Jammu.

14. Gupta, Satish Kumar. Synthesis and characterisation of some cerium (IV) complexes. University of Jammu.

15. Hari Kishore. Investigations on the influence of wood extractives on the dimensional stability of wood. Garhwal University.

16. Indra Prakash. Heterocyclic compounds : Synthesis of some thiazole, benzothiazole and condensed thiazole derivatives as potential anti-inflammatory agents. Kurukshetra University.

17. Kaul, Hari Krishan. The chemical studies on cyto toxicity of bilerubin. Avadh University.

18. Kharwadkar, Ramesh Manikrao. Studies in coordination chemistry. Marathwada University.

19. Kiran Bala. Synthesis of some heterosteroidal systems. Panjab University.

20. Kohli, Ram Murti. Chemistry of some naturally occurring oxy-heterocyclics. University of Delhi.

21. Mahajan, Madan Mohan. Metal complexes of some tridentate ligands derived from 2,6 disubstituted pyridine. Panjab University.

22. Maharaj Saran. Thermodynamic properties of some compounds near their melting points. Kurukshetra University.

23. Maldar, Noormahmad Nabisaheb. Studies in (I) vulcanization of rubber; and (II) syntheses of diamines and polysmides. University of Poona.

24. Mallik, Ashok Kumar. Chemistry of some natural heterocycles and homocycles. University of Calcutta.

25. Manvar, U.V. Studies on metal chelates. Saurashtra University.

26. Misra, Basanta Kumar. Studies on some retarded polymerization and copolymerization systems. Utkal University.

27. Modak, Anil Shrikrishana. Synthesis of heterocyclic compounds containing nitrogen, oxygen and phosphorus. University of Poona.

28. Nirankari Devi. Hydrolysis of bamboo soda lignin. Garhwal University.

29. Patel, Ashokkumar Ambelal. Polymers based on furfural. Sardar Patel University.

30. Patil, Shirishkumar Harishchandra. Physico-chemical investigations on coordination polymers. Sardar Patel University.

31. Prabhu, Sistla Rama. Chemical investigations on some aroma bearing and aroma precursor compounds in flue-cured tobacco. Andhra University.

32. Premaratna, A. Studies on lectin from the latex of Synadenium grantii Hook F. Bangalore University.

33. Ramesh Chand. Synthesis and stereochemistry of uranyl (VI) complexes of nitrogen, Oxygen and sulphur donor ligands. University of Delhi.

34. Rekha Bharti. Studies on sulphonation reactions of poplar wood constituents. Garhwal University.

35. Roy, Ajit Kumar. Physico-chemical studies of materials related to fertilizers. Indian School of Mines, Dhanbad.

36. Saini, Surendra Kumar. Metal derivatives of mono thio B-diketance. University of Rajasthan.

37. Sannigrahi, Abanibhushan. Theoretical studies of electronic structure and spectra of molecules by semi-empirical and abinitio methods, and didactical treatment of some basic quantum mechanical problems. University of Calcutta.

38. Sarkar, Subhra. Studies on phytochemicals and their transformation reactions. University of Calcutta.

39. Satyanarayana, N. A kinetic study of general base catalysed iodination of ketones. Kakatiya University.

40. Sen, Utpal. Electolyte behaviours in solution with reference to ion-solvent interaction. D.Sc. University of Calcutta.

41. Sethi, Manmohan Singh. Electrochemical investigations on some quinonemonoximes and their metal complexes. University of Delhi.

42. Shadi Lal. Physico-chemical studies on selective blocking of hydroxyl groups in cellulose. Kurukshetra University.

43. Shah, Rajendrakumar Chhotalal. Synthetic studies in phenyl substituted 1 H-2-benzopyran-1-ones. Sardar Patel University.

44. Sharma, Vinod Kumar. Electro-chemical studies at D.M.E. in aqueous and aqueous non aqueous media. University of Rajasthan.

45. Srikrishna, A. Triquinanes : Syntheses and transformations. University of Hyderabad.

46. Subbarami Reddy, N. Studies in the chemistry of anions and cations of agricultural importance. Krishnadevaraya University.

47. Subhash Chand. Studies on the nature of phase transition in substances adsorbed on porous and non porous adsorbants. Panjab University.

48. Syed Farhat Hussain. Chemical examination of Iraria picta. Garhwal University.

49. Tyagi Jai Chand. Thermodynamic study of weak interactions in the binary mixtures of non-electrolytes. Kurukshetra University.

50. Udupa, Ragupathy Sanninje. Microbiological transformations of flavonoids. University of Poona.

51. Verma, Ramesh Chandra. Synthesis and structural studies of bimetallic tetrathiocyanates and trimetallic hexathiocynates and their complexes. Avadh University.

52. Verma, Vijay. Reactions of chloride and isopropoxide of hafnimum (IV) with O, N or S containing ligands. University of Delhi.

Earth Sciences

1. Bandopadhyay, Tushar Kanti. Geophysical studies over Raniganj Coalfield using gravity and resistivity methods. Indian School of Mines, Dhanbad.

2. Paliwal, Bhawani Shanker. Tectonics of the precambrian rocks south west of Udaipur. University of Rajasthan.

3. Pandya, T.K. Geology of the major lead zinc deposits of Rajasthan. University of Rajasthan.

4. Sanysi Rao, Dhavala. A climatic study of water balance and floods in the Mahanadi River Basin. Andhra University.

5. Suryanarayana Murti, K. Pattern of sedimentation in the South Eastern part of Chhattisgarh Basin. University of Saugar.

Engineering & Technology

1. Dagddhi, Ramesh Chandra. Metal complexes of thio salicyclic acid. University of Indore.

2. Khameshara, Sagar Mal. The time dependence of electrical response of dielectrics. University of Rajasthan.

3. Sarma, D.A. Studies on the effect of saline water irrigation on finger millet and groundnut on light soils of Guntur District. Kakatiya University.

4. Zacharia, E.J. Corrugated flange technique for beam shaping of sectoral electromagnetic horn antennas. University of Cochin.

BIOLOGICAL SCIENCES

Anthropology

1. Babu, Manthripragada Sudhakar. Koya Doras : A population genetic study. Andhra University.

2. Daschaudhuri, Asitbaran. A study on genetics of quantitative variation of human head hair. University of Calcutta.

3. Lakshmanudu, Motupalle. Inbreeding effects on physical measurements in some Indian populations. University of Calcutta.

4. Sharma, Kadambari. A study of finger and palmar dermatoglyphics in congenital heart defects. University of Delhi.

Marine Biolog

1. Hridayanathan, C. Studies on macrobenthos of mudbanks of South-west coast of India. University of Cochin.

Biochemistry

1. Barik, Sailen. Studies on the polylysogens of bacteriophage lambda. University of Calcutta.

2. Chakrabarti, Jagadbandhu. Studies on certain aspects of pesticides and their residues. North Bengal University.

3. Ghosh, Ajaykumar. Production of antimicrobial agents from streptomyces species. University of Calcutta.

4. Misra, Suniti. Studies on the yeast lipids of rhodotorula species. University of Calcutta.

5. Pain, Debkumar. Studies on enzyme-linked immunoassay systems. University of Calcutta.

6. Rauth, Sikha. Studies on the regulation of nitrogenase in Spirillum lipoferum. University of Calcutta

7. Thomas, P. Thomas. Studies on the enzyme alpha glucan phosphorylase. University of Cochin

Botany

1. Acharya, Soumyadeb. Regulation of abscission phenomenon in some commonly growing medicinal plants of West Bengal. University of Burdwan.

2. Agarwal, Renu. Production of primary and secondary metabolites form in vivo and in vitro tissue cultures. University of Rajasthan.

3. Ashok Kumar. Cytological and physiological studies on some local isolates of chlamydomonas. Banaras Hindu University.

4. Bandyopadhyay, Bandana. Cytogenetic effects of single and combined treatments of physical and chemical mutagens in green gram, Phaseoleus aureus and black gram, Phaseoleus mungo. University of Calcutta.

5. Bandyopadhyay, Pranab Kumar. Seed treatment for vigour, viability and productivity of jute, Corchorus capsularis L and C olitorious. University of Calcutta.

6. Bisht, Narendra Singh. Studies on community structure, organic productivity and energetics in grass lands at Kotdwara (Garhwal). Garhwal University.

7. Bisht, Pushkar Singh. Foliar vascularization in some hamamelididae. Garhwal University.

8. Bubber, Subhash. Developmental anatomy of some crop plants. University of Rajasthan.

9. Chakrabarti, Malay. Investigation on fungal decay of wood of Artocarpus chaplasha Roxb and its control. University of Calcutta.

10. Choudhury, Nakul Kumar. Dark stress induced changes in the structure and function of chloroplasts of intact maize leaves. Sambalpur University.

11. Dakshinamurthi, V. Investigations on mosaic virus disease in sathgudi, Citrus sinensis (L) Osb. Sri Venkateswara University.

12. De, Mantu. Chromosomes and certain chemical components of medicinal value in certain taxa of Apocynaceae. University of Calcutta.

13. Dewan, Kusum. Effects of chlorflurenol-methylester and gibberellic acid (GA_3) on soybean (Glycine max (L) Merr) CV. Clark 63. University of Delhi.

14. Ghosh, Bidyabhusan. Hydrocarbon utilizing microorganisms with special reference to their role as a single cell protein and production of useful metabolic products. University of Burdwan.

15. Gupta, Usha. Production of primary and secondary metabolitics form in vivo and in vitro tissue cultures of medicinal plant. University of Rajasthan.

16. Gupta, Vinod Kumar. Studies on post-harvest physiology and biochemistry of certain fruits and vegetables. Kurukshetra University.

17. Jagan Mohan Reddy, K. Studies on the effects of some agro-chemicals on Dolichos biflorus L. Kakatiya University.

18. Jain, Raj Kumari. Studies on biology and physiological ecology of species of cuscuta : A common parasitic weed. University of Rajasthan.

19. Jana, Sasadhar. Studies on the physiology of a few submersed aquatic angiosperms. University of Burdwan.

20. Jayo Lakshmi, Kapila. Cytogenetic studies of B chromosomes in diploid and tetraploid pearl millet, Pennisetum typhoides (Burm) S & H. Andhra University.

21. Jha, Timirbaran. Isolation and culture of plant

protoplasts and study of chromosomal behaviour of callus tissues during their growth. University of Calcutta.

22. Joshi, Kalyan Govindrao. Physiological studies on some weeds of Marathwada-I. Marathwada University.

23. Kali Ram. Effect of certain weedicides on Salvinia auriculata. Kurukshetra University.

24. Karadge, Baburao Atmaram. Physiological studies in succulents : Physiological studies in Portulacaoleracea Linn. Shivaji University.

25. Landhi. Lakhan Lal. Influence of mix-cropping on soil microbiological complex in relation to certain soil borne pathogens. Vikram University.

26. Muraleedharan Nair, P.R. Ecological studies of two common forbs from grass lands of Varanasi. Banaras Hindu University.

27. Narula, Kishori Lal. Studies on phytophthora blight of colocasia. Kurukshetra University.

28. Parmar, M.S. Studies on some alternaria species infecting plants of the family Composites. University of Rajasthan.

29. Patil, Vijay Pitamber. Hormonal and metabolic aspects of dwarfism in sorghum. University of Indore.

30. Pradhan, Vishwa Nath. Study of stand structure, net primary production and nitrogen dynamics of a semi-acid grassland near Jaipur (Rajasthan). University of Rajasthan.

31. Rajwar, Gouind Singh. Floristic and vegetational exploration of Siwaliks and adjacent Bhabar Tract between kho and ganges (Garhwal) University.

32. Ray, Animesh. Studies on mushroom flora of West Bengal. University of Calcutta.

33. Sadanandam, A. Experimental mutagenesis and karyomorphological studies in Capsicum annum L. Kakatiya University.

34. Saini, Dinesh Chandra. Flora of Basti. University of Gorakhpur.

35. Sarkar, Pijush Kanti. On the pollen flora of Greater Calcutta in relation to aeropalynological survey. University of Calcutta.

36. Semwal, Jai Krishna. Taxonomical survey of Tungnath and eco-physiological studies of some selected plants of the region. Garhwal University.

37. Sharma, Mahesh, Chandra. Growth, development and productivity of Glycine soja, Dolichos lablab and Dolichos biflorus at Different altitudes in Garhwal Himalayas. Garhwal University.

38. Shenoy, K. Narashimha. Studies in the convolulaceae. Sardar Patel University.

39. Suryanarayana Murthy, G.V. Studies on the pollen morphology of the Indian taxa of some inferae. Kakatiya University.

40. Venkateswara Rao, Nadella. Structural and develapmental studies in the Brassicaceae. Sardar Patel University.

Zoology

1. Abul Hassan. Histology and histochemistry of the alimentary canal of a few nematodes inhabiting the gastro intestinal tracts of some vertebrates of economic importance with a note on food uptake of the parasites. University of Burdwan.

2. Agrawal, Shanker Ji. Effects of certain metal pollutants on a fresh water fish. University of Gorakhpur.

3. Bhattacharyya, Swapan Kumar. The histology of the pituitary gland of the Indian fresh water climbing perch, Anabas testudineus (Bloch) in relation to reproduction. University of Burdwan.

4. Bora, Upendra Nath. Role of vitamin C as inhibitor of malignancy in mammals. Gauhati University.

5. Chattervati, Shiv. Taxonomical, morphological and histochemical studies on the nematodes of some reptiles. Panjab University.

6. Chattopadhyay, Apurba Kumar. Studies on the intracellular microorganisms in some insects. University of Burdwan.

7. Chattopadhyay, Pinaki Ranjan. Studies on the nematicidal properties of some indigenous plants. University of Burdwan.

8. Chaurasia, Jeewan. Studies of certain neurohumors in cancer with particular reference to neural tissue in tissue culture. Banaras Hindu University.

9. Chugh, Triloki Nath. Studies on the post embryonic development of Diacrisia obliqua Walker (Lepidcoptera : Insecta). Kurukshatra University.

10. Dar, Narender. Limnological studies on Chambal river with special reference to pollution. Vikram University.

11. Dey, Sudip. Studies on some physiological and biochemical aspects of vision in some arthropods. North Eastern Hill University.

12. Farooqui, Uvais Mohammed Omer. Reproductive physiology of marine crab. Scylla serrata. Marathwada University.

13. Ghosh, Bhudeb. Some aspects of behavioural ecology of stray-dogs (Canis familiaris) in urban and rural environments. University of Burdwan.

14. Girija, N. Metabolic studies on functionally different muscles of a fresh water cat fish, Clarius batrachus (Linn.). Kakatiya University.

15. Mathur, Girish Kumar. Investigations on the effect of new synthesized chitin synthesis inhibitors on a phytophagous and a stored product pest. University of Rajasthan.

16. Nandi, Swapan Kumar. On morphology and biology of some chironomids (Diptera : Chironomidae) of West Bengal. University of Burdwan.

17. Niazi, S. Development of the eye with special reference to visual and retinomotor responses in the toad, Buf O melanostics Schnedios. University of Rajasthan.

18. Peter, Esther Rachel Subhashini. Termite fauna of Guntur and ecology of Trinervitermes biformis (Wasmann). Nagarjuna University.

19. Ponnuchamy, R. Studies on the bioenergetics of feeding and behaviour of a few freshwater prawns. Bangalore University.

20. Prasad, Surya Bali. Biochemical, fluorescence and electron microscopical studies on the effect of cis-dichlorodiamine platinum (II) on the surface of tumor and normal cells. Banaras Hindu University.

21. Rajeswari, T.S. Developmental and aging changes in amino acid and vitamin B6 metabolism in the central nervous system of rat. Bangalore University.

22. Ramanujam, S.N. Some physiological and biochemical studies on the effects of the fruits of a piscicidal plant, Zanthoxylum armatum. North Eastern Hill University.

23. Ramesh Singh. Reptilian endocrinology : Parathyroid gland in some species of squamata. Banaras Hindu University.

24. Ravindra Singh. Pharmacological studies on the chemosterilization of the snail, Lymnaea asuminata. University of Gorakhpur.

25. Revanasiddaiah, H.M. Electrophoretic studies in some oriental anophelines. Bangalore University.

26. Saha, Krishna, Nematodoses of some vertebrates of Burdwan District. University of Burdwan.

27. Saksena, Meena. Studies on the histochemistry of the normal and regenerating skin of a fresh water teleost, Mystus vittatus with effects of certain chemical pollutants. University of Indore.

28. Sarwade, Dnyandeo Vitthalrao. Biology of the cestodes parasites of fishes and birds. Marathwada University.

29. Senapati, Susama. Some aspects of studies on oribatid mites (Acari) of Orissa and West Bengal. University of Calcutta.

30. Sharma, Prem Prakash. A study of the effect of vacor—a rodenticide on rats (Raltus references). University of Rajasthan.

31. Singh, Girish Chandra. Studies on the feeding behaviour of certain phytophagous insects. University of Gorakhpur.

32. Subramanyam, K. Studies on physiological rhythms in the cockroach, Periplaneta americana (L) with special reference to effects of light. Sri Venkateswara University.

33. Sukhbeer Kaur. Studies on some aspects of the ecology and biology of Channa gachua (Ham) and Channa stewartii (Play fair). North Eastern Hill University.

34. Tyagi, Nirmala Shishir. Characterisation of mosquito cells in vitro. University of Poona.

35. Vinod Kumar. Photoperiodic response of some migratory birds. Banaras Hindu University.

Medical Sciences

1. Kamal, Sudarshan. Syntheses and pharmacological screening of some new phenothiazines as antigastric secretory and antiulcer agents. University of Rajasthan.

2. Mallik, Biralchand. Assessment of control of pregnancy by oral contraceptive and newer menstrual regulation techniques in urban, rural and slum areas of West Bengal. University of Calcutta.

3. Mandal, Jibananda. A study of epidemiology of colour blindness and refractive eross among an aboriginal tribe (Lodhas) of West Bengal. University of Calcutta.

4. Mishra, Pradeep. Phytochemical, pharmacological and microbiological investigation of fruits of some aromatic plants. University of Saugar.

5. Mitra, Ratna. Aspirin induced gastric lesions with special reference to their inhibition by certain amino acids and some aspects of aspirin metabolism. University of Calcutta.

6. Rami Reddy, Bhimavarapu. Some electrical properties in the stability testing of w/o emulsions. Nagpur University.

7. Sengupta, Mala. Studies on experimentally induced gastric ulcer. University of Calcutta.

Agriculture

1. Adhaoo Sudhakar Haribhau. Optimization of energy inputs for crop production. I.A.R.I., Delhi.

2. Alshi, Madhukar Ramchandra. Impact of technological change on production, employment and factor shares in cotton crop in Akola District (Maharashtra). I.A.R.I., Delhi.

3. Babu, Akkineni Ramesh. Determinants of research productivity : The scientists perception. I.A.R.I., Delhi.

4. Bali, Anoop Singh. A study on the growth, yield and quality of triticales and wheat under normal and late sown conditions with different levels of nitrogen. I.A.R.I., Delhi.

5. Balraj Singh. Development of and recovery from water stress in maize (Zea mays L.) sorghum (Sorghum bicolor (L) Moench) and pearl millet (Pennisetum americanum (L) K. Schum) fodder crops. Haryana Agricultural University.

6. Banerjee, Ashish Kumar. Studies on the physiology and pathology of bacterial leaf streak of paddy (Xanthomonas translucens f. Sp. oryzicola). C.S Azad University of Agriculture and Technology.

7. Basant Singh. Interrelated effect of temperature, humidity, food and density of insect population on the reproduction and development of Cadra cautella Walker. C.S. Azad University of Agriculture and Technology.

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AND

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Master's degree in Food Tech./Agril. Tech./Science in the concerned subject of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 50% marks or with atleast 2.50 C.G.P A. in four point scale.

OR

Master's degree in Science with atleast 50% marks or with atleast 2.50 C G P.A. in four point scale with Ph.D. in Food Microbiology of this University or of any other University/ Institute recognised as such by this University as equivalent thereto.

Desirable

(i) Doctorate degree in the concerned subject.

(ii) Experience of Post-graduate teaching and/or Research and/or Extension Education.

(iii) Knowledge of Marathi.

Qualification for the post of Asstt. Prof. of Cereal Technology (Tech.)

Essential

(1) Bachlor's degree in Agriculture/ Science/Agril. Tech. of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 45% marks or with 2.25 C G P.A. in four point scale.

AND

Master's degree in Food Tech./ Agril. Tech./Agriculture in the concerned subject of this University or of any other University/Institute recognised as such by this University as equivalent thereto with at least 50% marks or with atleast 2.50 C G.P.A. in four point scale.

OR

(2) Bachelor's degree in Agriculture/ Science / Agril. Technology of this University or of any other University/ Institute recognised as such by this University as equivalent thereto with atleast 45% marks or with atleast 2.25 C.G.P.A. in four point scale.

AND

Master's degree in Science with at least 50% marks or with atleast 2.50 C.G.P.A. in four point scale with Ph.D. degree in the concerned subject.

Desirable

(i) Doctorate degree in the concerned subject.

(ii) Experience of Post-graduate teaching and/or Research and/or Extension Education.

(iii) Knowledge of Marathi.

Qualification for the post of Asstt. Prof. of Meat Technology (Tech.).

Essential

Bachelor's degree in Tech. (Food Sc)/ Agriculture/Veterinary Science/Home Science of this University or of any other University / Institute recognised as such by this University as equivalent thereto with atleast 45% marks or 2.00 C.G.P.A. in four point scale.

AND

Master's degree in Tech. (Food Science)/ Food Technology /Veterinary Science/Meat Technology with a specialisation in Meat Technology of this University or of any other University/ Institute recognised as such by this University as equivalent thereto with atleast 50% marks or 2.50 C.G P.A. in four point scale.

Desirable

(i) Doctorate degree in the concerned subject.

(ii) Experience of Post-graduate teaching and/ or research and / or Extension Education

(iii) Knowledge of Marathi.

Qualification for the post of Asstt. Prof. of Bio-Chemistry (Tech./Food Chemistry (Tech.).

Essential

(1) Bachelor's degree in Science/ Agriculture / Veterinary / Agril. Tech, of this University or of any other University/ Institute recognised as such by this University as equivalent thereto with atleast 45% marks or with minimum C.G.P.A. of 2.25 in four point scale.

AND

Master's degree in Food Technology / Bio-Chemistry/Food Chemistry Agril. Technology of this University or of any other University/ Institute recognised as such by this University as equivalent thereto with atleast 50% marks or with minimum C.G P.A. of 2.50 in four point scale.

Qualification for the post of Research Officer (Asstt. Prof).

Essential

Bachelor's degree in Technology (Food Sciences)/ Agriculture, Home

Science of this University or of any other University/ Institute recognised as such by this University as equivalent thereto with atleast 45% marks or 2.00 CGPA in four point scale.

AND

Master's degree in Technology (Food Sciences)/ Food Technology of this University or of any other University/ Institute recognised as such by this University as equivalent thereto with atleast 50% marks or 2.50 CGPA in four point scale.

Desirable

Experience in Specialised branch.

Qualification for the post of

(i) Asstt. Professor of Clothing & Textile (Home Science)

(ii) Asstt. Professor of Home Management (Home Science)

Essential

(i) Bachelor's Degree in Home Science of this University or of any other University/Institute recognised as such by this University as equivalent thereto in Second Class with atleast 45% marks or with minimum CGPA of 2.25 in four point scale.

AND

(ii) Master's Degree in Home Science of this University or degree or diploma of any other University/Institute in the subject and recognised as such by this University as equivalent thereto in second class with atleast 50% Marks or with minimum CGPA of 2.50 in four point scale.

Desirable

(i) Experience of Post-Graduate teaching and/or Research and/or Extension Education.

(ii) Knowledge of Marathi.

(iii) Doctorate degree in the concerned subject.

Qualification for the post of Asstt. Prof. of Child Development & Family Relationship (Home Science):

Essential

Bachelor's degree in Home Science of this University or of any other University/Institute recognised as such by this University as equivalent thereto and/or P.G. Diploma in child development as recognised by this University with at least 35% marks or with atleast 2.25 CGPA in four point scale.

AND

Master's degree in Home Science of this University or of any other University/Institute recognised as such by this University as equivalent thereto in the concerned subject with atleast 50% marks or 2.50 CGPA in four point scale.

Desirable

(i) Doctorate degree in the concerned subject.

(ii) Experience of Post-Graduate teaching and/or research and/or Extension Education.

(iii) Knowledge of Marathi.

Qualification for the post of Asstt. Professor of Food & Nutrition (Home Science)

Essential

1. Bachelor's degree in Home Science/- B. Tech. Food Science/Agriculture/- Science/Veterinary/Horticulture/ Fisheries of this University or of any other University/Institute recognised as such by this University as equivalent thereto with atleast 45% marks or with atleast 2.25 CGPA in four point scale.

AND

Master's degree in Food & Nutrition or equivalent degree of this University or of any other University/- Institute recognised as such by this University as equivalent thereto with atleast 50% marks or 2.50 CGPA in four point scale.

Desirable

(i) Doctorate degree in the concerned subject.

(ii) Experience of Post graudate teaching and/or research and/or Extension Education.

(iii) Knowledge of Marathi.

Qualification for the post of Asstt. Professor of Extension Education: (Home Science)

Essential

Bachelor's degree in Home Science/- Agriculture / Veterinary / Agril. Technology/of this University or any other University/Institute recognised as such by this University as equivalent thereto with atleast 45% marks or with atleast 2.25 CGPA in four point scale

AND

Master's degree in Extension Education of this University or of any other University / institute recognised as such by this University as equivalent thereto with atleast 50% marks or with atleast 2.50 CGPA in four point scale.

Desirable

(i) Doctorate Degree in the concerned Subject.

(ii) Experience of Post-graduate teaching and/or research and/or Extension Education.

(iii) Knowledge of Marathi.

Qualification for the post of Research Assistant (Technology)

Essential

1. Bachelor's degree in Technology (Food Science) of this University or of a degree of other University/Institute recognised as such by this University as equivalent thereto with atleast 60% marks in aggregate or minimum CGPA 2.83 in four point scale.

OR

2. Bachelor's degree in Technology (Food Science) of this University or a degree of any other University/Institute recognised as such by this University as equivalent thereto with 45% marks in the aggregate or with minimum CGPA of 2.00 in four point scale.

AND

Master's degree in Tech. (Food Science) of this University or a degree of any other University/Institute recognised as such by this University as equivalent thereto with 50% marks or with minimum CGPA of 2.50 in four point scale.

Qualification for the post of Stenographer

Essential

(i) S.S.C. or equivalent examination in Second Class with atleast 45% marks in aggregate.

AND

(ii) Govt. Diploma/Certificate in Shorthand in English with a minimum speed of 100 words per minute in English.

AND

(iii) Govt. Diploma/Certificate in English typing examination with minimum speed of 40 w.p.m. in English.

Desirable

Graduate and experienced candidate will be preferred.

Qualification for the post of Junior Engineer

Essential

1. Bachelors degree in Civil Engineering with atleast Second class or 50% marks.

OR

(ii) Diploma in Civil Engineering of Government Recognised Institute with atleast second class or 50% marks.

Qualification for the post of Sub-Overseer

Essential

I.T.I. Course trade mechanical or Surveyor.

Qualification for the post of Compounder: (Medicine)

Essential

(1) S.S.C. Examination of Maharashtra State Board of Secondary Education or any other examination as equivalent thereto.

AND

(2) Diploma in Pharmacy

AND

(3) At least one year's experience in Hospital.

Qualification for the post of Block Maker

Essential

1. S.S.C. Examination or its equivalent examination passed.

AND

2. At least three years experience as Half tone, line other etc. and such other block making. Candidate should have knowledge of mounting, enlarging and to handle independently blockmaking of all types.

OR

Block Making trade passed from I.T.I.

Qualification for the post of Library Assistant

Essential

S.S.C. or its equivalent examination passed.

AND

A certificate in Library Science of recognised Institute/ University.

Qualification for the post of Reprographic Assistant

Essential

S.S.C. or its equivalent examination passed.

AND

Two years working experience of operating Xerox machine.

Qualification for the post of Boiler Assistant (Tech)

Essential

I.T.I. Diploma/Certificate in the concerned trade.

AND

At least three years experience in the concerned field.

Age

The maximum age limit for all the posts, except the post at Sr No. 26 is 30 years. For the post at Sr. No. 26 maximum age limit is 25 years.

Maximum age limit will be relaxable for all the posts by 5 years for the candidates belonging to SC/ST/-DNT/NT/OBC.

The age limit shall not apply to person already in the service of Central/-State government/this University/or any *other University/Institute* recognised by this University.

Application forms for the posts at Sr. No.1 to 24 can be obtained from the Comptroller, Marathwada Agricultural University Parbhani at the cost of **Rs 2**/- in the form of crossed Indian Postal Order in the name of Comptroller, Marathwada Agril. University, Parohani and for these posts applications in the prescribed forms complete in all respects together with crossed Indian postal order or *Rs* 8/- in the name of the Comptroller Marathwada Agril. University, Parbhani as *registration fees should reach* to the Registrar, Marathwada Agril. University, Parbhani latest by 5-00 P.M. on **10.5.82.**

Application forms for the post at Sr. No. 25 to 33 can be obtained from the Comptroller, Marathwada Agril. University, Parbhani free of cost **only for Unemployeed Candidates** and should be submitted without registration fees to the Registrar, Marathwada Agricultural University, Parbhani latest by 5.00 p.m. on **10.5.1982**. Other candidates willing to apply for the post at Sr. No. 25 to 33 will have to obtain prescribed application forms at the cost of Rs 2/ in the form of crossed Indian Postal Orders in the name of the Comptroller, Marathwada Agricultural University, Parbhani and should be submitted without registration fees to the *Registrar*, Marathwada Agril. University, Parbhani latest by 5.00 p.m. on **10.5.1982**.

Incomplete applications in any form or those received after prescribed time and date will not be considered and no correspondence thereon will be entertained.

Reservation of posts for SC/ST/NT, DNT/OBC etc. is as per Maharashtra State Govt. rules.

Request of forms *must specify* the name and Sr No of the post accompanied by self addressed envelope atleast of the size of 23 cm x 10cm with 65 paise stamps adhered to it.

Separate applications shall have to be made *for separate posts. If considered* necessary by the University the candidate *shall have to* appear for personal interview in the University office at Parbhani at candidate's own cost.

In the event of the large number of applications received in the response to this advertisement, to avoid inconvenience to all concerned at the discretion of the Vice-Chancellor, limited number of candidates only be invited for interview even though others not invited for interview might be satisfying the *prescribed minimum* qualification.

Candidates already in the services of Central/State Government or any other organisation and those in the service of this University should necessarily apply through proper channel forwarding an advance copy to the undersigned. The advance copy should reach latest by 5.00 p.m. on **10.5.1982**. Theapplications to be received through proper channel should reach latest by 5.00 p.m. on **25.5.1982**. University will not be responsible for postal delay. The fact that the posts are advertised does not mean that necessarily all the posts will be filled in.

Canvassing in any form will disqualify the candidate for employment under this University.

H.S. Bonde
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN WEST BENGAL

Advertisement No. 16/81-82
Dated, 7 April, 1982

Applications in the prescribed form are invited for the following posts in the approved scales of pay (viz. Professor— Rs. 1500-60-1800-100-2000-125/2-2500 and Lecturer— Rs. 700-40-1100-50-1600/-) plus dearness and other allowances, pensionary benefits according to the rules of the University.

A. **Department of History**
Professor ..One post
B. **Department of Political Science**
Professor ..One post
C. **Department of Geography**
Lecturer ..One post
D. **Department of Law**
Lecturer ..Two posts

Minimum Qualifications

1. (a) A Doctor's Degree or published research work of an equally high standard and

(b) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in the relevant subject(s) or an equivalent degree of a foreign University.

2. **Additional Requirements**

For Professorship

(i) At least ten years' teaching experience in postgraduate class;

(ii) Competence to plan and supervise *Research Project*;

(iii) Publication of sufficient merit.

Desirable Qualification: Specialisation or Proficiency

For A & B: Any branch of the subject.

For C : Social Geography with specialisation in Regional Planning/Urban Geography/Settlement Geography either in the postgraduate level or in the research level or its equivalent.

For D: (i) **First post of Lecturer with proficiency in Procedural Law:** Candidate must have ten years' practice at the level of District Court coupled with 5 years' teaching experience in the same discipline

(ii) **Second post of Lecturer with specialisation in Public International Law:** Preferably with International Economic Law and also five years' teaching experience.

The University Council may, on recommendations of the appropriate Selection Committee, waive the requirement of Doctorate degree or other requirements in consideration of the candidate's specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with self-addressed stamped (0.50p.) envelope (9" x 4").

Last date for submission of application with requisite fee of Rs 5/- is **April 30, 1982.**

A K. Chaudhuri
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O. IIT, POWAI, BOMBAY-400 076

Advertisement No. A-63/82

Applications are invited for the following permanent posts at *this Institute*, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, P.O. I.I.T., Powai, Bombay-400 076 on request accompanied by self addressed envelope (25 cm x 10 cm) *Applicants should* give an account of their academic and professional record and list of research *publications. Persons employed in* Government/Semi-Government Organisations or Educational Institutions should apply *through proper channel.* Indian candidates abroad may apply on plain paper in duplicate. The posts *carry allowances such as* D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those *admissible to the* Central Government Employees stationed at Bombay. Depending on qualifications and experience, *higher salary* may be offered. Completed applications should reach the Registrar, I.I.T., Powai, Bombay-400 076 ***on or before* 30th *April*, 1982.**

Some posts of Lecturer are reserved for the candidates belonging to SC/ST community.

Assistant Professor : Scale of Pay: Rs 1200-50-1300-60-1900.

Lecturer: Scale of Pay : *Rs* 700-40-1100-50-1600.

Qualifications & Experience
Assistant Professor

Consistently good academic record with a Doctorate degree in the relevant field. About 5 years experience in teaching and/or research and development.

Candidates not possessing Ph.D. may also be considered if they have to their credit equivalent published research work or design/development work of high standard either in an Institution or in an Industry.

Lecturer

Master's degree in appropriate field in engineering/technology.

One year's relevant professional experience.

Areas of Specialisation : (In one or more of the following)

1. Computer Centre

For the posts of Assistant Professor & Lecturer

VLSI Design, Digital Systems and Microprocessors, DBMS, Management Information Systems, Speech recognition and synthesis, Picture processing, Computer Networks, Software Engineering, Performance Evaluation.

Some of the Lecturers will have to teach Programming Language Courses (FORTRAN) COBOL etc), give seminars to computer users and carry out programming and system software maintenance.

2. Department of Metallurgical Engineering

For the posts of Assistant Professor & Lecturer

(1) Materials Technology
(2) Ferrous Nonferrous Process Metallurgy
(3) Mechanical Metallurgy

Desirable : Teaching and research experience in one or more of the following :

i) Foundry Technology
ii) Process Control and Automation
iii) Mineral Processing
iv) Thermodynamics and Kinetics Heat and Mass Transfer
v) Modelling and Simulation
vi) High Temperature Materials
vii) Metallurgical Analysis
viii) Fracture Mechanics
ix) Metal Forming & Metal Joining
x) Corrosion and Protection

3 Environmental Science and Engineering Group

For the post of Assistant Professor

(1) Air and Water Quality Modelling
(2) Environmental Microbiology
(3) Environmental Engineering

MANIPUR UNIVERSITY

CANCHIPUR : IMPHAL

Dated : 5th April, 1982

Applications are invited for the following posts :

1. Professor in Political Science
2. Associate Professor in Life Sciences
3. Associate Professor in Chemistry
4. Associate Professor in Mathematics
5. Associate Professor in Manipuri
6. Associate Professor in Burmese
7. Assistant Professor in History
8. Assistant Professor in Physics
9. Assistant Professor in Chemistry
10. Assistant Professor in Political Science
11. Assistant Professor in Hindi
82. Assistant Professor in English
13. Assistant Professor in Life Sciences.

Essential Qualification

Post No. 1: (a) Consistently good academic record with atleast a high 2nd Class Master's Degree in Political Science or an equivalent qualification from an Indian/Foreign University; (b) A doctor's degree or published work of an equally high standard; and (c) About ten years teaching and/or research experience.

Desirable Qualification: Considerable experience of guiding research in the field.

Post No. 2, 3, 4, 5 & 6. (a) Consistently good academic record with atleast a high 2nd Class Master's degree in the concerned subjects or an equivalent qualification from an Indian/Foreign University; (b) A doctor's degree or published work of an equally high standard; and (c) About five years experience of teaching and/or research experience.

Desirable Qualification: Some experience in guiding research in the M. Phil/Ph D. levels.

Post No 7,8,9,10,11,12 & 13: (a) *Consistently good academic record with* atleast a high 2nd Class Master's degree in the concerned subject or its equivalent qualifications from an Indian/Foreign University; and (b) A doctor's degree or published work of an equally high standard.

Desirable Qualification: (a) Some experience of teaching; (b) High aptitude for, and ability to guide research in the concerned subjects

Provided that in the case of Assistant Professor if the Selection Committees are of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualification prescribed in (a) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or his practical experience in a research laboratory organisation or the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Area of Specialization

Post No. 1 : Specialization in the field of Political theory including political analysis.

Post No. 2: Specialization in Entomology / Ecology / Plant Physiology/ Plant Pathology/Fishery/Genetics.

Post No. 3: Specialization in Physical/Organic/Inorganic/Biochemistry.

Post No. 4: Specialization in Theory of relativity & gravitation/Homological algebra/Integral transform/ Functional analysis/Theory of groups/ Fluid mechanic/Statics.

Post No. 5: Specialization in Manipuri culture including dance and music forms of the region.

Post No. 6: Specialization in Burmese studies.

Scale of Pay

Professor: Rs. 1500-60-1800-100-2000-125/2-2500 -

Associate Professor : Rs. 1200-50-1300-60-1900 -

Assistant Professor: Rs 700-40-1100-50-1600

Plus usual allowances as admissible to the members of the staff of the Manipur University.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic/professional distinction and (b) in exceptional cases when adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will be open to the University to consider the names of suitable candidates who may not have applied.

Benefits of C.P. Fund-Cum-Gratuity G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their application through proper channel.

Due consideration will be given to candidates belonging to Scheduled Caste/Scheduled Tribe at the level of Assistant Professor.

Second Class railway-fare plus the bus-fare for the road link (both ways) will be paid to candidates invited to appear for interview from outside by the shortest route subject to production of railway/bus receipt. Applications addressed to the Registrar in plain papers and in duplicates containing the following particulars should reach the Registrar, Manipur University, Canchipur, Imphal-795003-latest by the **6th May 1982** furnishing all the relevant information such as their names; date of birth; marital status; nationality; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publications, and (b) research projects undertaken; details of visits to foreign countries; and the names and addresses of atleast two persons well acquainted with the candidates professional work who should also be requested by the candidate to forward to the Registrar, Manipur University, Confidential *report concerning the candidate.*

S. Sarat Singh
REGISTRAR

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH MAY 1, 1982

F om left to right: Mr. M. Hidayatullah, Vice-President of India, Dr. Gurbakhsh Singh, V ce-Chancellor, Delhi University, Dr. H. Ian Macdonald, President, York University, Ontario, Canada and M s. Macdonald at the meeting of the Administrative Board of the International Association of Universities.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

CLASSIFIED ADVERTISEMENTS

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, A.P.

HUMAYUN NAGAR, HYDERABAD—500 028

NOTIFICATION

Applications are invited for the following teaching posts in the constituent colleges of this University.

Sr. No.	Post and Department	Scale of pay
1.	Lecturers in Civil Engineering	700-40-1100-50-1600
2.	Lecturers in Mechanical Engineering	—do—
3.	Lecturers in Elelctrical Engineering	—do—
4.	Lecturers in Electronics and Communication Engg.	—do—

Note : All the posts carry D.A., H.R.A., C.C.A. etc. as per the State Government Rules.

Age Limit

Not more than 30 **years** as on **1-7-82**. The age limit can be relaxed in case of inservice candidates of J.N. Technological University.

For S.C./S.T./B.C. candidates, the age limit is relaxable by 5 years.

Qualifications

A First Class Master's Degree in the concerned subject with consistently good academic record.

Reservations

Reservation for Scheduled castes (14%)
Scheduled Tribes (4%)
Backward classes (25%)

Application forms can be had from the office of the Registrar, Jawaharlal Nehru Technological University, Hyderabad—500 028 on payment of **Rs. 5**/- through crossed Indian Postal order not earlier than dated **13.4.82**, payable to the Registrar, Jawaharlal Nehru Technological University, Hyderabad—500 028 at Jawaharlal Nehru Technological University Post office. Requisition for the supply of Application form may be made enclosing self-addressed envelope 30 x 10 cm size with stamps worth of **Rs 2.00** (Rupees two only) duly affixed. Duly filled in applications together with a crossed Demand Draft of Rs **15/- (Rs 3 00** in case of S.C./S.T. candidates) issued in favour of the Registrar, J.N. Technological University, Hyderabad payable at State Bank of India, Humayun Nagar, Hyderabad should reach *the Registrar on or before* **5 P.M.** *on* **31-5-1982.**

Applications received after the due date either in person or through post will be rejected. Application of candidates in employment should be sent through their Employer. They may however send an advance copy which must be received in University office on or before the due date.

REGISTRAR

GARHWAL UNIVERSITY

SRINAGAR (GARHWAL)

Advertisement No 14/1982

Wanted Lecturer in Music (Vocal) One, Lecturers in Mathematics (Specialization in Computer Science & Fluid Dynamics) Two, Lecturers in Political Science Two, Lecturer in Education(One) Lecturer in Journalism One, (Pay-Scale *Rs 700-40-1100-50-1600).*

Posts of Music and Political Science (One) are temporary, rest are leave vacancies but likely to become clear vacancies in due course.

Qualification for the post of Lecturers

1. (a) A doctorate degree or research work of an equally high standard in relevant subject, and
   (b) Consistently good academic record with first or high second class Master's Degree, or an equivalent degree of a foreign University in a relevant subject. A candidate having obtained either an average of 55 per cent marks in the two examinations prior to Master's degree that is to say intermediate and Bachelor's degree examinations (irrrespective of the marks obtained in any of the two examinations or 50 per cent marks in each of the two examinations separately, *is said to have consistently* good academic record.
2. If the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the bualification prescribed in sub-clause (b) of clause (1).
3. Where in cases referred to in clause *(2) of no candidate possessing* Doctorate Degree or equivalent research work is available or is considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed, provides he has done research work for atleast two years or has practical experience in a research Laboratory or organisation, on the condition that he obtains a doctorate or gives evidence of research work of equivalent high standard within 5 years of his appointment, failing which he shall not be able to earn future increments until he fulfils *the requirements.*

Application forms can be had on request from the undersigned by enclosing a self-addressed stamped (1.50) envelop of size 13 cm x 10 cm Last date for receipt of applications with Bank Draft of **Rs 50** in favour of the Registrar, Garhwal University, Srinagar (Garhwal) is **20-5-1982**.

P L. Chhabra
REGISTRAR

UNIVERSITY OF DELHI

Advertisement No Estab. IV/74/82

Dated 14th April, 1982

Applications are invited for the post of Registrar of the University.

Scale *of pay : Rs 1500-60-1800-100-2000*

Unfurnished residential accommodation will be provided by the University for which rent will be charged at the usual rate.

Conditions of service shall be embodied in the Agreement of Service.

Leave. Leave Salary, allowances, Provident Fund and other benefits admissible, *will be as prescribed in this* behalf by the University from time to time for employees of the University.

The post carries D.A., H.R.A., C.C.A. and other allowances as admissible under rules in force from time to time.

Qualifications

Essential : High academic qualifications *including evidence of* sustained intellectual interests, Experience of administration at the executive level.

Desirable: Experience of University administration and familiarity with the working of University bodies and institutions, Familiarity with methods of general financial control.

The prescribed application form can be had from the Information Office of the University, either personally or by sending a self addressed envelope with postage stamps worth **Rs 3.10 p.** to the undersigned.

Selected candidate will be required to produce original documents relating to their age, qualifications, experience, etc. before joining the appointment.

Applications, accompanied by attested copies of degrees and other certificates etc., should reach the undersigned not later than **31.5.1982**.

Note : 1. Relaxation of any of the qualifications may be made in exceptional cases.
2. Canvassing in any form by or on behalf of the candidate will disqualify.
3. Candidates called for interview from outside Delhi will be paid to and fro single second *class rail fare.*

K.N. Thusu
REGISTRAR

UNIVERSITY NEWS

VOL. XX **MAY 1**
No. 9 **1982**

A Fortnightly Chronicle of Higher Education **Price Re. 1.25**

IN THIS ISSUE

Uneconomic Expansion of Higher Educational Institutions 306
Systems Approach for Curriculum Improvement 308
Integrated studies of the western ghats region 309

Convocation

Education and Progress 312

Campus News

Golden Jubilee of BHU Mahila Mahavidyalaya 315
Seminar on restructuring of courses at NEHU 316
Annual conference of IASP 317
Electronics project for Osmania 318

Agriculture

New technique to determine oil content 320
New type of maize developed at Almora 320
IARI scientists develop new rice varieties 320

Science & Technology

ISRO may associate varsity scientists *321*
Science & citizen seminar 321
Research in Progress 322
Theses of the Month 324
Current Documentation in Education 328
Classified Advertisements 330

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : **M.S. Ramamurthy**

Education should serve human interests

Shri M. Hidayatullah, Vice-President of India and Chancellor of Delhi University, inaugurating the 39th meeting of the Administrative Board of the International Association of Universities in New Delhi on April 20, 1982, said that education should be broad based and must incorporate in itself knowledge of the fundamental principles of administration which subserves human interests. He said that education had proved that there was a race between education and catastrophe. The world was moving toward catastrophe and education was the only safeguard. He observed: "*We must first try to discover that essential element in education* which humanises us and then impress on ourselves the methods by which that essential element can be perceived and made to grow round the world".

Dr Guilerno Soberon Rector, National Autonomous University of Mexico & President, IAU, said that there had been a rapid expansion of the universities the world over during the last three decades creating a new dimension for activities of all kinds involving international contacts between universities. Higher education, he said, should get priority in all countries and an adequate budget should be allocated for this purpose. A university which did not have international dimensions would deteriorate in the quality of its teaching and research ladder. Explaining the need for IAU, he said that it was a forum for encounter between different social, economic and political situations.

Dr (Mrs) Madhuri Shah, Chairman, University Grants Commission, noted that education should liberate the human spirit and breed fearlessness in people.

Dr Gurbakhsh Singh, Vice-Chancellor of Delhi University and *Indian member of the Administrative Board of IAU, said* international commitments were necessary for the survival of universities in developing countries. Cooperation and exchanges between universities give an opportunity to learn more about the working of other universities which could also be implemented in the home country, he added. He emphasised the need for academic and student exchange programme. He also called for initiation of joint projects among the universities all over the world.

Sixteen Indian Universities are among the 800 member Universities of the IAU. The Administrative Board of IAU met for 3 days and was attended by 32 representatives.

Uneconomic Expansion of Higher Educational Institutions

R. P. S. Rana*

One unsatisfactory aspect of the present situation is the existence of a very large number of colleges with a very small enrolment. In 1964-65, there were 15.6 per cent of the colleges in the non-viable position of having less than 100 students. If an enrolment of 500 students is regarded as the very minimum below which a college may tend to be uneconomic and inefficient, about 60 per cent of the colleges were below this level. If an analysis is carried out of the small colleges with an enrolment of less than 100 during 1964-65, then the data are available for 168 institutions only, but even from this some interesting facts emerge. The study regarding these colleges indicates that 72 per cent of these small colleges were established during the four year period 1961-64. Whether these colleges can increase their strength with age cannot be predicted, especially in view of the fact that 28 per cent of the colleges which were established before 1960 and some of them even as far back as 1947, have continued to have a strength of less than 100. Population figures of the locality in which the colleges are situated were available in respect of 114 colleges and of these more than 50 per cent of the colleges were situated in towns whose population ranges from 10,000 to 75,000 and there were 31 such colleges in areas whose population exceeded 75,000. It is also significant that there were 11 small colleges with enrolment of less than 100 in big cities whose population exceeded 4,00,000. Only 20 colleges can be said to be situated in sparsely populated area, 10,000 and below. Of these colleges, 36 enrolled only men students, 32 only women students, in 97 admission was open to both men and women students. Some of these colleges were in backward areas with large tribal population.

Regarding such non-viable colleges, Commission has made a comparative study of viable and non-viable colleges during the period 1973-74 and 1977-78. A viable college is defined as a college having an enrolment of 400 or more after excluding pre-university/pre-professional and intermediate enrolments.In states having two years degree course in Arts, Science and Commerce, the enrolment isi taken as 270 for purpose of determining the viability of a college. The proportion of viable colleges has gone up from 49.5% in 1973-74 to 54.2% in 1977-78 and the proportion of non-viable colleges has gone down from 50.5% in 1973-74 to 45.8% in 1977-78. But the proportion of viable colleges further came down from 54.2% in 1977-78 to 53.3% in 1978-79 and proportion of non-viable colleges has gone up from 45.8% to 46.7% as shown in the following table :

TABLE

Viable and Non-Viable Colleges

(Arts, Science, Commerce only: 1974-75 to 1978-79)

Year	Viable Colleges	Non-viable Colleges	Total
1973-74	1,367 (49.5)	1,396 (50.5)	2,763 (100.0)
1975-76	1,518 (50.2)	1,505 (49.8)	3,023 (100.0)
1977-78	1,696 (54.2)	1,433 (45.8)	3,129 (100.0)
1978-79	1,696 (53.3)	1,486 (46.7)	3,182 (100.0)

Figures in parenthesis shows percentage

The table shows that the number of viable and non-viable colleges during 1977-78 which was 1,696 and 1,433 respectively and during 1978-79 the number of viable and non-viable was 1,696 and 1,486 respectively. Comparing the figures of the period 1977-78 and 1978-79, it appears that uncontrolled expansion of non-viable colleges is going on.

However, the disparity between various universities in the number of students directly on rolls in the university teaching departments continued because during 1977-78 only seven universities (Lucknow University, M.S. University of Baroda, Allahabad University, Banaras Hindu University, Calcutta University, Aligarh Muslim University and Jodhpur University) had an enrolment of more than 10,000 students (under-graduates, post-graduates, law, professional courses combined) being taught directly by the university teaching departments. The highest number 19,012 (which included 5,860 law students) was enrolled at the Lucknow University. On the other hand, there were a number of universities where the enrolment was less than 400, the number prescribed for a viable college. Thus Bhopal University established in 1970 had an enrolment of 57 and Jiwaji University, Gwalior, 113. In order to avoid undue stress on the older and larger universities it appears desirable to lay down the maximum number of seats for various courses both post-graduate and under-graduate and in faculties including law. This would also help in a more balanced growth of the smaller and newer universities. New universities or colleges set up to cater to regional needs if they are unable to attract a sufficient number of students, not only become a drag on the system, but entail a much higher per capita expenditure, both plan and non-plan, as compared to many developed universities.

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From the analysis of the table, it is apparent that while the proportion of non-viable colleges declined during the fifth plan, the total number of non-viable Arts, Science and Commerce colleges in the country increased from 1396 in 1973-74 to 1,433 in 1977-78 and to 1,486 in 1978-79. The existence of such a large number of non-viable colleges not only acts as a drag on standard, it has serious social implications as well. Non-viable colleges, many of which are located in the rural areas or in smaller towns, cater to the weaker sections of the society. Since standards in these institutions are low (because they have not been provided proper facilities by the state governments before granting them recognition) and they are unable to find good teachers, the students who pass out from these institutions feel handicapped and suffer from a sense of inferiority. The problem of non-viable colleges can hardly be tackled without the close co-operation of the State Governments and the U.G.C.

The second problem regarding proliferation of non-viable states in post-graduate education and colleges is also a matter of serious concern because out of 612 post-graduate Arts, Science and Commerce colleges in 1977-78, three states (Maharashtra, U.P. & M.P.) accounted for 365 or 60%. If we add four other states (Tamil Nadu, Kerala, Rajasthan and Punjab), these seven states account for 543 or 89% postgraduate colleges. It is obvious that equal standards of education for competitive examination all over the country cannot be maintained if such large number of post-graduate colleges are sought to be maintained by some of the state governments in addition to large numbers of universities. Low standard of education is mainly responsible for the meagre achievements in economic development specially in Madhya Pradesh, where maximum agricultural land as well as natural resources are available in larger quantity but it is one of the poorest states of India.

The new strategy regarding non-viable colleges, non-viable expansion of higher education and non-viable states in post-graduate education that we propose, has two important aspects. The first is the need to concentrate scarce human resources and not to scatter them over too wide an area. Even at present, our own universities and colleges produce a small number of outstanding Indian scientists and scholars who, if they were to enter upon an academic career under the right conditions, would be able to make a great contribution to the improvement of our academic standards. But, apart from the fact that they are too few compared to our inherent national capacity and our population, they are unfortunately scattered thinly and at random over the entire system of higher education and have to work in comparative isolation and under unfavourable conditions; the burden of heavy teaching load, large classes of unchallenging and few students; apathetic or intellectually unambitious colleagues; and an administrative system which intentionally or unintentionally does not encourage and in some cases, even actively discourages high intellectual vitality and motivation. The able persons, who could have provided the required learning are thus rendered ineffectual when they are so scattered and what is worse, their own creative powers decay under such conditions. On the other hand, experience has shown that the best results follow where a goodly number of persons of high potentialities come together face to face in intellectual communities and by their constant dialogue and communication, stimulate each other to put forth their best creative efforts. If there is high quality of personnel, it makes all the difference whether people work in relative isolation resulting eventually in stagnation or in vigorous self-activating groups.

The second aspect that we propose is the development of all non-viable colleges, where conditions may be provided, both as to staff and students as well as to the necessary equipment and atmosphere, to make first class post-graduate work and research possible. The standards of these non-viable colleges should be comparable to the best institutions of their type in any part of the world so that really gifted and promising students need not normally have to go abroad for receiving post-graduate or research training. The size of the colleges has an important effect on their costs and efficiency and it is therefore, important to evolve a suitable policy in this matter. But no suitable policy has been made in India and in granting affiliation to new college. Care has not been taken to see that its location is properly planned so as not to interfere with the proper growth af an existing institution and it has not been seen that there is reasonable chance to grow into an institution of an adequate size. Therefore one unsatisfactory aspect of the present situation is the existence of a very large number of colleges with very small enrolments. The problem of non-viable colleges is a serious problem for a growing society having limited financial resources. For the benefit of the whole society following measures may be taken to tackle the problem of non-viable colleges/universities.

(1) It is better to enforce a ban on the establishment of new universities, as well as of new colleges. In the present circumstances neither the expansion of non-viable colleges is desirable nor feasible. Instead, it is necessary to concentrate on the adoption of essential measures to convert non-viable colleges into viables to lead to a substantial improvement in standards.

(2) It must be pointed out that the establishment of new universities can be justified only when competent men and physical facilities required for the purpose are available on the one hand and on the other our planners ensure that the output of these universities and colleges will be absorbed.

(3) Unless adequate provision of funds is made, it may not really be necessary to start a new university or college. The aim in view of more manpower can be met by developing under the auspices of a university, one or more post-graduate and research centres. The university can help to strengthen such

(Continued on page 311)

Systems Approach for Curriculum Improvement

M. Malla Reddi*
S. Ravishankar*

In recent years, there has been growing concern among educators on the need for reform in curriculum, in grouping students, in scheduling learning activities, in individualising and equalising educational opportunities, in utilising teaching methods and media and so forth. However, efforts for improvement have been sporadic and unrelated to overall learning objectives and based on whim rather than on a systematic evaluation of alternatives.

Most educational institutions have been trying to find an answer to the problem whether they can efficiently educate students and serve society adequately within the present administrative and organisational set-up. It appears that changes in organisational structure and processes must be made if educational institutions are to capitalise fully from revolutionary proposals for curriculum improvement, and ultimately, for improvement of conditions in society. In this context, the concept of systems approach, grounded in modern organisation theory, is advanced with the prospect that it can break the impasses existent in the educational institutions today, specially the impasse that impedes curriculum improvement.

Educators have viewed systems concept in different ways. One school of thought has described it as "a set of objects together with relationships between the objects and between their attributes." Another has described it as "some whole form insstructure or operation concepts or function, composed of united and integrated parts". Systems may vary as to size, complexity, abstractness or concreteness. Thus, a system can be conceived as a unit characterised by defined boundaries and an array of interrelated parts, with the purpose of achieving stated objectives. Obviously, a system consists of input, process (thruput), output and feedback. In the context of curriculum improvement systems concept is to be considered as "a process designed to redirect various elements of curriculum to ensure the accomplishment of educational objectives".

Generally, curriculum has been defined by many as a body of subjects or subject matters that are to be covered by the teachers and the students. This view, which reflects a traditional concept has been there from the beginning of the twentieth century. There are educators who consider curriculum to be an instructional plan. Illustrative is the definition of Hilda Taba (the well known cusriculum specialist) that specifies "curriculum as a plan for learning". There are also others who view curriculum as a production system. Those who speak in terms of activity or job-analysis, behavioural objectives and systems analysis are among those who should be included here.

Curriculum, in fact, is the series of experiences that students should have in order to attain the educational objectives. On the other hand, curriculum could be viewed as "the learning experiences involving the analysis of definite operations, to which the term job-analysis is applied, as in the analysis of the operations involved in running a machine.".

Systems concept, when applied to education, views curriculum as a technological process that contains many sub-processes. in this perspective, curriculum is a transmitting system that is intended to convert raw material (students) into products. A systems approach to curriculum improvement implies an understanding of organisation and interaction between components integration of all activities, mutual dependence between components, and achievement of purpose.

Characteristics of systems approach : In effecting improvement in educational curriculum, the characteristics underlying the systems concept has an influential role to play. These are as follows:

Purpose : The components of a system for curriculum improvement consist of the plan for providing and implementing teaching-learning situations. With a systems approach, objectives are central in decision-making activities and pursuant planning includes a consideration of all relevant factors to the steps that are taken in the achievement of the goals. The ends of this particular system consist of the general and specific objectives that are formulated as the goals for the specific school or college population, systems approach emphasises the need to relate curriculum to long-term or general goals and short-term or specific goals. For example a currently advocated goal of curriculum planning is to develop educational programmes that help learners to become self-learners. To reflect this goal, curriculum plans would need to include curriculum designs and learning activities that extend over an entire period of schooling.

Organisation and interaction : This is a necessary characteristic of a systems concept. Organisation in a system denotes "the arrangement of the components of the system into interdependent parts which function in a manner that allows to achieve its objectives". The components or parts, considered as a whole constitute the organisation. The compo-

(*Continued on page 319*)

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Integrated studies of the western ghats region

Given below is the second part of the report prepared by the University of Poona. The first part appeared in April 15 issue of University News.

Dimensions of study

Broadly speaking a regional study takes into account three basic aspects, viz. physical, economic and social, and the ways in which these intersect. Under these aspects to be studied with relation to the Eastern Ghats project it would be useful to briefly indicate some dimensions of socio-ecological problems that may be relevant.

(*a*) *The context of the physical environment and resources:* It is possible to think of investigating the eco-system in terms of biological and physical determinants both as they exist now and as they have developed and evolved over times (i.e. both synchromic and diachromic ecology of the region may be studied.) Here specialists from the fields of biological sciences, earth sciences forestry and energy sciences would be able to make important contribution; so would the work of natural historians be significant.

(*b*) *The technological context* : The studies would centre around the techno-economic structure of the selected communities, the existing patterns of exploitation of their natural environment, their history and development, the impact of technically effective means of production and the problems such forms of resources have given rise to. One could also study the pattern of developing demands and forms of want satisfaction and growth of economic networks in the region, as well as the imbalance created by the impact of larger economic forces. This would require the special contributions of economic geography, economics, applied technology, market analysis, economic history, economic sociology, etc.

(*c*) ***Social organization and power structures***: Here the focus would be on the formal and informal, social, political, communication and administrative structures developed in the region; their development, present functioning and the problems they face. An attempt could be made to study the mechanisms of formal control and the structures of power and decision making involved therein. Under this aspect, one may also consider demographic, stratificational and family and community organization, as well as entrepreneurial, technological and social leadership.

(*d*) *The psychological context*: This aspect of the project would concentrate upon the phychological aspect of the man environment relation phenomena such as the stress and strains of the adaptive relation; motivational aspects of resource exploitation and resource conservation; the personality variables involved in such relationships; socialization and child-rearing practices; institutions and their impact on the personality; the growth of ecological attitudes; skills and sentiments in individuals and groups. The impact of modernizing trends on the personality-types could be studied in terms of the expertise of psychologists, sociologists and social psygchologists.

(*e*) *The context of community structures*: An attempt could be made to study the history, growth and break-down of the specific communities, their institutions of policy-making and implementation their local strategies of control as well as their relationships with wider social networks. Here the expertise of scholars in sociology, politics and public administration, history and law would be relevant.

(*f*) *The cultural context* : The cultural focus would have three sub-contexts or dimensions the normative, the symbolical and action-contexts. The normative context indicates the study of generalized beliefs, attitudes, images and representations of the man-environment relation. the rules of prescribed and perferred modes of relationship; the ethos of conservation and exploitation values and moral beliefs, etc. The symbolic dimension is the area of symbolic expression of the ecological relationships; direct as well as indirect, in the form of folk tales, linguistic and artistic productions, proverbs, conventionalized and standardized models of character and conduct. Here the contribution of linguists, folklorists and aestheticians would be of great help. The action-contexts, refer to the ceremonials, rituals and other standardized forms of expressive action.

Inter-disciplinary profiles

Keeping in view the three-fold approach outlined above, and the integrated theoretical model proposed above, it may be possible to identify some of the specific areas of investigation and also to indicate the broad disciplines that may be involved in the formation of interdisciplinary teams for each of the areas.

Area of investigation	*Inter-disciplinary profiles*
1. The preparation of an integrated profile of the chosen region in terms of geological, climatic, vegetational, arboreal aspects.	Remote sensing, Geography, Geology, Soil Science, Forestry, Botany, Microbiology, Zoology, Physics, Chemistry, Ethology.
2. The transformation of natural resources into energy and economic goods.	..Applied technology studies of tools and machines, Studies of crafts and production techniques sciences of energy, production, economics, market analysis.

3. The techno-economic infrastructure	. . Applied technology, Studies production techniques, arts and crafts, economic analysis of modes of production and division of labour.
4. Social Organization	. . Demographic Studies, Analysis of stratification and institutional structure, communication patterns, administrative and decision making agencies and organizations. Sociology, Politics, and Public Administration, Communication Sciences, Population Geography, Law etc.
5. Normative components involved in the process of adaptation	. . Values, norms and prescribed modes of conduct, analysis of informal controls-anthropology, ethnolinguistics, ethon-literature folk-lore studies analysis of rituals and ceremonials.
6. Psychological context of adaptation	. . Analysis of motivations, stresses and strains of adaptation, personality characteristics, socialization and group behaviour, learning and skills. Psychology, Social Psychology, Sociology, Anthropology, Philosophy, Languages and linguistics.
7. Impact of ecological adaptation on human population	. . Demography, genetics, biology, psychology, biochemistry, biomedicine, etc.
8. Formal and informal controls	. . Analysis of community development programmes and other administrative agencies concerned with regional development and planning. Social work, community development, organizations, Law, Public Administration.

Special emphasis on population

The most important problem before the country today is the problem of population explosion. It is therefore, essential to pay special attention to the demographic study of the Western Ghats. Population characteristics are essential not only from the point of view of rapidly increasing numbers but also from the point of view of the nature and quality of man power and requirements of the community such as medical and educational facilities, employment, housing, etc. Following aspects of the population of the region could be studied.

(i) Distribution of population to represent pressure of population.

(ii) Growth of population including trends in fertility, morality and migration,

(iii) Age-sex composition and its impact on :

- (a) availability of working hands;
- (b) rate of population and growth; and
- (c) demand for educational and medical facilities, housing etc.

(iv) Literacy and education, including;

- (a) attitudes of various population groups towards education; and
- (b) impact of spread of education on the social-economic aspects of the society.

(v) Religious/caste composition, including;

- (a) role played by religious/caste groups in the socio-economic systems; and
- (b) attitudes of different religious/caste groups towards :
    1. family planning.
    2. education.
    3. Socio-economic change.

(vi) Work-force and occupational structure, including :

- (a) extent of unemployment among both educated and uneducated persons;
- (b) participation of females in differnt economic activities and unemployment among females; and
- (c) labour supply in the future.

It is significant to note here that the Sixth Plan makes a special *mention of the problem of employment in rural areas.* Several existing and new developmental programmes are seen as contributing to the creation of employment opportunities in the rural areas especially in the lean periods and periods of calamity. "It is necessary to view employment as an indivisible component of development and ensure that both in concept and implementation employment and development become catalysts of each other, and the benefits to the community from the limited resources available maximised." (P. 174).

On-going programmes of the University of Poona

In keeping with the philosophy outlined above the University of Poona has initiated a number of programmes in the Western Ghat region under the aegis of its different Inter-disciplinary Schools. Eleven schools, five in the area of the Sciences and six in Arts, Social Sciences and Law have been set up. These have taken up programmes of interdisciplinary nature that are relevant to the needs of the rural population of the upland areas of western Maharashtra.

The School of Energy Studies is presently carrying out experimental studies relating to use of agricultural waste and vegetation in bio-gas production, and on generation of electricity using animal energy. Work has also been initiated on use of wind energy in the hilly tracts.

The School of Environmental Studies has undertaken a study of the physical determinants of environment like landforms, vegetation, rocks, soils and groundwater in two middle-order river basins (The Pravara basin and the Karha basin) on the eastern flanks of the Sahyadri.

The School of Materials Science is investigating the possibility of using locally available agricultural wastes for production of hard-boards.

The School of Basic Medical Science has undertaken surveys regarding problems of rural health in the upland areas.

The School of Communication Studies is engaged in preparing software relating to socio-economic problems of the upland area. A studio for preparation of T.V. films and video-cassettes is nearing completion on the University Campus.

The School of Behavioural Science has a number of significant projects in socio-psychological areas. Problems like concepts of Stress, Intelligence-testing of brain damaged children, Neo-Budhist practices, Socio-economic dimensions of Industrial Residents, and Women and Divorce are being studied under various projects.

The School of Language has undertaken studies in semantics and contrastive analysis.

The School of Rural Development Studies has initiated a study of problems connected with tribal societies and rural development.

The School for Social and Cultural Praxis has undertaken studies in comparative religion, Jain religion and problems of health and disease among the tribal people.

The School of Western Indian Studies is undertaking projects in the area of historical interpretation.

Time frame

Visualised as a five year project in the first instance, the following time-budgeting is proposed for the project :

1. Mapping of the available data: 0—36 months

   (It is understood that this aspect of the study would be carried out in terms of large territories as well as smaller identified areas where experimental research may be carried out).
2. Survey of available literature : 0-12 months
3. Experimental projects :

On-going-	0-24 months
New	12-60 months

Expected benefits

The project should provide a new unified basis for the study of social phenomena in the form of an integrative prospective. Based on the concept of problem solving, the Project should highlight the inter-relationship between socio-cultural factors and environmental development with techno-economic consequences. At the purely academic level the project may help in the conceptualization of new pattern of interdisciplinary studies. Specifically, it is expected that the Project will yield the following benefits :

(1) The Project could provide a comprehensive profile of the complex problems of adaptation not merely as seen from the external point of view of community development agencies, but as seen and felt by the people involved in the processes.

(2) It would provide a useful basis for an in-depth analysis and evaluation of policies and their implementation,

(3) On the basis of such analysis and evaluation, a more effective plan of action programmes could be suggested.

(4) The Project should help in the formulation of Area Studies.

(5) The project would provide useful experience in interdisciplinary research methodology and interdisciplinary course planning.

Uneconomic Expansion of Higher Educational Institutions

(*Continued from page 307*)

centres in many ways. It can depute its teachers to work for stipulated periods at these centres. It can sanction additional staff for the purpose, if necessary. It can expand existing laboratories, library or build new ones. It can assist in the construction of additional hostel facilities. An arrangement of this type can secure most of the advantages of a university without throwing on the exchequer all the administrative and other expenses involved in the establishment of a new university or college. Besides, some of these centres could very well meet all the needs of a developing area and thereby prepare the ground for the eventual establishment of a full-fledged university.

(4) In granting affiliation to colleges, the universities should emphasize the expansion and development of existing colleges, rather than the establishment of new ones.

Some non-viable colleges are in backward areas with a large tribal population and it is understandable that they may take some years to grow. But qualitative growth is quite impossible and it would be a wastage of investment in education. Therefore it is better to open higher secondary school in tribal areas and for higher education they may be sent at the better places of learning. Adjustment may be made by expanding old hostels or establishing new ones.

Analysing that the standard of the first degree and other post-graduate work in the non-viable affiliated colleges cannot be in general the same as that of the education imparted in viable colleges or university departments. The latter will usually have a more balanced combination of teaching and research than in a college and specially in non-viable college, better staff, better qualified students and better resources. At the same time, there are several colleges of long-standing which have done and are doing as good work as any good university and it should be an objective of educational policy to encourage them and on other hand the expansion of non-viable colleges should be discouraged. □

Convocation

Education and Progress

The last five years have seen many changes, not only in our own country, but even more so, in the countries around us and also in the world at large. No country in the world, especially a country like India, with its composite culture and ancient civilization, its long history and traditions, its strategic position at the cross-roads of Asia, can live in isolation. At the same time, no independent self-respecting nation can survive the stresses and strains, the pulls and pressures of the modern world unless it is able to stand on its own feet and make the optimum use of its human and material resources as well as its talents and skills. While the world is becoming more and more inter-dependent, the gap between the rich and the poor nations, the developed and the developing countries, the so called North and South, is unfortunately widening. Unless and until the developing countries can become individually and collectively self-reliant, there is little hope of there getting a fair deal from the developed countries and making rapid progress.

How do we evaluate progress? Progress of any society has to be considered in the context and against the background of its history, cultural ethos, and its social, economic and political goals. There cannot be progress in a vacuum. Progress is a multi-dimensional and many faceted phenomenon which improves the lives of people in every section and cross-section of society without discrimination on grounds of religion, caste, birth or social status. An elitist society that is highly cultured and prosperous in the higher rungs or at the outer fringes, and does not have an impact on the life of the mass of the people, cannot be considered as cultured or prosperous. Progress in order to be enduring must percolate down to the poorest sections of society: otherwise it would generate tensions and conflicts that can upset the social system and destroy its economic and political foundations.

Progress is measured by different yardsticks, in different political systems. The history of mankind is replete with examples of civilisations that shown for a while and then faded out. This was due to many reasons—social, economic, political and ideological. Some philosophers believe mainly in the materialistic interpretation of history; some believe only in the spiritual, while others may believe in the doctrine of mysticism or the theory of predetermination. The twentieth century produced a new yardstick of measuring progress and development in terms of increase in the gross national product or *per capita* income. However, it was soon exposed as being inadequate because mere increase in the production of total wealth of a nation or *per capita* income statistically worked out, does not necessarily mean that the increase is shared equally or equitably by all sections of society. Economic growth is essential but it must be combined with social justice for real progress in human terms.

We see in the world today a sharp contrast in the standard of living between the developed and the developing countries, and also between different sections of society in each country. Such glaring and unjust disparities give rise to dissatisfaction, tension and frustration, particularly among the havenots, who constitute more than two thirds of the world population. Can we, therefore, claim that humanity as a whole is more prosperous, more contented and happier than it was a few centuries ago? Greater production of national wealth, without a fair and equitable distribution system, will lead to greater imbalances and widen the gulf and increase tension not only between the more developed and less developed countries but even within those countries themselves.

I wish to emphasize this with special reference to our own country because we are, in a sense, one of the most developed among the developing countries. Our universities and training establishments have expanded and increased significantly since Independence and today we have the third largest number of scientists, engineers and technicians in the world. We have also laid foundations for a modern society and organised a sophisticated infrastructure for planned development. This was largely due to the vision and the policies adopted by our first Prime Minister, Jawaharlal Nehru, and the inspiration we received from Mahatma Gandhi during our freedom struggle. However, the paradox of the situation today is that though we are rich in natural resources and human skills, we are still one of the poorest countries in the world, judging by our per capita income and large scale unemployment, especially among the educated youth.

The most important problem that faces our educated youth today is the problem of unemployment. Many commissions and committees have been appinted during the last three decades or more to study this problem. But unfortunately some of their important recommendations have still to be implemented. The time has come when we must take concrete steps to meet tthis urgent problem by giving a new orientation to our system of education so that every young man or young woman who graduates from a university is equipped to find gainful employment in fields for which he or she has been trained. Education must be employment oriented.

It is also necessary that we give a rural bias to education in rural areas so that movement from rural to urban areas is discouraged and adequate attractions and avenues of employment are available in the rural areas themselves.

An allied problem is that of the large number of students who seek admission to universities after doing their higher secondary examination. This is partly due to the fact that there are not enough vocational and technical training establishments to which such students could be diverted instead of all of them rushing to join the universities. It is, therefore, necessary to increase the number of vocational and technical training establishments and polytechnics. When this has been done it should be possible to select the top 20 or 25 per cent of students for higher educational establishments and thereby reduce the overcrowding at our universities, which is responsible for the lowering of standards.

This does not mean that we should discourage those who want to go for higher education. On the contrary, greater facilities should be available for in-service training, for evening classes, for correspondence courses and the like to encourage higher education among those also who go in for vocational and technical training.

Another important aspect is that of educating the educators, the training of teachers and raising their pay scales so that we may be able to attract the best qualified and most suitable persons to teach our youth. Unfortunately, today the most neglected persons in our society seem to be the teachers in the primary and secondary schools who do not command the respect and affection of the pupils and their parents. Emphasis must be given to the gass-root level of education by providing suitably trained and adequately paid teachers at these levels. Pay scales of teachers in high schools and universities also need to be revised so as to attract the best talent available in the country.

It is a pity that the budget for education has such a low priority in our State and Central Budgets. If we are to improve the quality of education and thereby improve the quality of life of our people we must provide more funds for libraries, teachers and students and all that goes to make education attractive and worthwhile e.g. sports and youth camps, music, dance, drama and other cultural and extramural activities.

Sources of tension and strain between the students and the teachers must be removed so that our educational institutions become a happy ground for communication and cross-fertilisation of thoughts and ideas and provide a practical example of cooperation between the different generations of our society. Educational institutions must be free from interference of outside elements and allowed to grow in a healthy, peaceful and congenial atmosphere of their own.

Student movements in many countries have led to significant changes in the social system. In our own country, during the freedom struggle, students were second to none in this struggle. There is no reason why they cannot organise themselves on a constructive basis and act as a catalytic agent for ensuring social change peacefully and speedily. May I venture to suggest that the student community should go out to the villages on Sundays, holidays and during their vacation, try to study the problems of the areas surrounding them and set an example of solving some of their problems by lending a helping hand to the more backward sections of society? The Government should also encourage such movements by helping them financially and otherwise, to launch national campaigns for removing illiteracy, cleaning the villages and cities, building feeder roads, digging wells and canals and so on, by having student camps in various States during the vacations.

The younger generation in general, and the educated youth in particular, are the sentinals who can guard our society against anti-social and anti-national elements. They have the ability and the desire to do so but what is needed is proper guidance and leadership. There is no reason why youth groups, both in rural and urban areas, cannot become the vanguards of detecting cases of corruption, black-marketing, hoarding and preventing such evil customs as dowry, untouchability, bonded labour and so on.

I do not wish in this brief address to dilate at length on the *causes* for our present social and economic ills but would like to invite your attention to finding suitable *remedies* for them. Unfortunately some of the portals of our educational institutions have become the gate-ways to political interference, casteism, communalism, parochialism and obscurantism. It is high time we devoted attention to making our universities and educational institutions places of serious study, where students and scholars could pursue their work and research in an atmosphere of peace and security and engage in constructive work and creative thought.

However, this does not mean that our educational establishments should live in ivory towers cut off from the mainstream of life. Education must be related to life. The educated youth must find avenues for suitable employment so that they can serve the country and their fellow human beings to their maximum capacity.

University centres must integrate themselves with the community around them—not merely through extension lectures, though these are useful. But even more important and urgent is the effort to create an impact by setting proper standards and improving the quality of life around them. For this purpose, it is necessary to study first and foremost the conditions, needs and requirements of our own country and the various regions comprising it, and to introduce area studies for special subjects in each university. The study of an area should include its past and present, as well as its future potentialities in the fields of culture and tradition, literature and history, politics and economy. To achieve this, it is necessary to provide adequate library facilities and to have them well-staffed. Inspite of the advance of radio and television the book is still the most permanent source of serious study for scholars and students.

Instead of each university trying to study almost all subjects under the sun, it might be useful, perhaps, to divide the areas of specialization in particular subjects and distribute them among the various universities.

Last, but not the least, is the problem of population which seems to eat up almost all the progress we are making. If I may venture to say to the young men and women who are fortunate to receive their degrees, "Please set an example to every section of society by not marrying young, by not accepting dowries, by planning your families and helping others to do so". Each one of you should try to teach at least ten others who are still illiterate. Inspite of the increase in our literacy percentage the total number of illiterates is greater today than ever before and is likely to increase further. . . .

I am not presenting a grim picture of the future that awaits you. India has made more progress in many fields since Independence, compared to other developing countries. We have achieved self-sufficiency in food. We have raised the national wealth. Our rate of economic growth is encouraging. Our industrial production is picking up, but we have still a long way to go to make up for the neglect of centuries when we were under foreign rule and to keep up with the modern advances in science and technology, research and development. We have the capacity and ability, we have a talented and hardworking population; what is needed is the national will to overcome all obstacles and become a self-reliant nation in the shortest possible time.

To achieve this we shall have to shed some of the bad things inherited from our past and acquire some of the good things of the present day world. We seem to have blindly adopted a system of education and administration, of law and justice, which are showing signs of breaking up under the stresses and strains of the modern world. It is time we changed some of the outmoded, obscurantist and obstructive rules and procedures inherited from colonial times that hamper development. For instance, can we afford to delay justice by having three or four courts of appeal? can we afford to have obstructive writs of petition even in minor cases which could be settled by administrative tribunals? Is it necessary for the elected representatives of the people to try all kinds of devices, right or wrong, to settle their narrow political scores even at the sacrifice of national interests? Is the role of the Opposition merely negative and obstructive, to oppose everything the ruling party proposes just for the sake of opposing it ? Is there not need for the ruling and other parties at the Centre and in each State to work together for the common goal of improving the lot of the common man and woman? Is our electoral system suited to bringing up honest, dedicated and patriotic persons into our legislature or does it tend to encourage corruption because of the high cost of fighting elections? Do we have the criteria of merit and performance and a sense of time and urgency in our administrative structure? Should we not curb the tendency to evade responsibility, shirk initiative and pass the buck to some one else who in his turn passes it on to others? Is it not time to consider ways and means of improving our parliamentary structure by having shorter sessions and devoting more time to serious discussion in depth in a number of committees where the members of legislatures could concentrate on their field of specialisation with adequate research and other staff to help them?

I am posing these questions to you because they have a relevance to our daily life and you will be faced with some of these problems when you leave this university. Another question debated today is whether we should have a presidential or parliamentary form of Government. The question is and should be whether and how we can improve the existing system and its various branches—the executive, the legislature and the judiciary—to work more smoothly, speedily, effectively and honestly? I believe that we can do so if we have the will and determination. I hope that you will give some attention to these problems and, no matter where you are working, you will try to give of your best in the service of your institution, keeping in view the larger interests of our country and people.

Let others contend about the *forms* of government; what is more important is the content—the way government functions and the administration runs. We have adopted democracy alright, but what is needed is greater emphasis on the spirit of democracy which ensures equal opportunities for all, equal rights and obligations, freedom from exploitation whether by the government or by the opposition, by the bureaucracy or the media' by the rich land lords and businessmen, the blackmarketers and hoarders.

The last five years have been a period of challenge as well as opportunity. Our form of democracy has met the challenge and survived successfully but it still lacks the real content which could make it meaningful to the broad masses of our people.

It is up to you, the younger generation and the educated youth, in particular, to mould and adapt the system so that we may be able to meet all internal and external threats successfully, speedily and as one unsted nation. . .

The communication gap between the younger and the older generation must be bridged. You are the eyes and ears of the people, you must take your responsibilities seriously and equip yourselves to bear the heavy burdens you will have to shoulder. It will be a long and difficult struggle that lies ahead of you. Be fully prepared for it. As Swami Vivekananda said "Arise, awake and stop not until your goal is reached." [*Excerpts from the convocation address delivered by Dr. T.N. Kaul, Member, Executive Board, UNESCO, at the Sri Venkateswara University, Tirupati.*]

Golden Jubilee of BHU Mahila Mahavidyalaya

The Mahila Mahavidyalaya (Women's College), a constituent College of the Banaras Hindu University, celebrated its Golden Jibilee between April 2-5, 1982.

A special convocation was held on April 3 to honour five distinguished women of the country with the honorary degree of doctorate (honoris causa) for their valuable contributions in the field of Arts, Science, etc. The recipients of the honoris causa degrees were—Smt. Kamla Devi Chattopadhyay, Smt. Rukmini Arundel (for classical dance), Smt. Kapila Vatsyayan (for Arts and Culture), Smt. Madhuri Shah, Chairman, U.G.C. (for education) and Smt. Ashima Chatterjee (for Biology). Chancellor, Dr. Vibhuti Narain Singh, conferred the degrees.

On this occasion, 18 distinguished women of the country, 11 alumnae and 15 retired teachers of the College, were specially honoured. Among them were Padma Bhushan Dr. Kamala J. Ranadive, Padmashree Dr. Thangam Philips, reputed writer Ismat Chugtai, Ophthalmologist Dr. Hamida Saiduzafar, Dr. Vimla Patil, Editor, Femina, Smt. Subhadra Tailang, educationist and others.

A two-day seminar on the "Status of Education of Women in India" was also organised. Inaugurating the seminar on April 3, Dr. (Smt.) Madhuri Ratilal Shah, Chairman, U.G.C., stressed the need of providing such education to women, which may be helpful in their all round development. She strongly opposed the idea of reservation for women. In her opinion reservation would retard the progress of woman in India.

Dr. (Km.) Sarojini Varsneya, Principal, Women's College, introduced the recipients of the awards and called upon women to take the responsibility of awakening the downtrodden and participate in the overall progress of the country.

Earlier, Dr Iqbal Narain, Vice-Chancellor, BHU, while welcoming the Chief Guest, said that this University has taken steps for spreading higher education among the women.

UGC Chairman at BHU

During her busy programme at Banaras Hindu University, Dr. (Mrs.) Madhuri Shah, laid the foundation stone of research building in the Central Library of the University on April 4. She stressed that books were the base of humanity. The greatest values of the books were that they were not outwiped like the radio and television news but could be consulted any time. Earlier while welcoming the chief guest, Dr. Iqbal Narain, Vice-Chancellor, B.H.U. thanked the U.G.C. Chairman for sanctioning funds for the construction of the research building on priority basis.

Later, Dr. Madhuri Shah inaugurated the painting exhibition based on Ramayana at Bharat Kala Bhawan. She also released some books on this occasion.

Dr. (Smt.) Madhuri Shah addressed the meeting of Teacher's Association, B.H.U. on April 4, at Arts Faculty Auditorium. She expressed her concern over the deterioration in the field of education and appealed to the teachers to ponder over the matter and suggest means for improving the educational standard.

Office bearers of the Officer's Association, Student's Union and Non-Teaching Employees Union also met Dr. Madhuri Shah and discussed their problems with her. She assured them to do her best within the limitation of U.G.C

Recipients of the honorary degree of doctorate (honoris causa).

Campus News

Seminar on restructuring of courses at NEHU : A Report

A 2-day seminar-cum-workshop on Restructuring of the Courses at the +3 stage was organised in March at North-Eastern Hill University. Chairmen and Members of the Boards of Undergraduate Studies in Social Sciences, Languages, Education and Sciences, participated to work out details of a restructured pattern of courses for a 3-year degree programme to be started in North Eastern Hill University from this academic year.

In his inaugural address, Dr. B.D. Sharma, Vice-Chancellor, brought to the attention of the members of the Boards that the Academic Council of NEHU recently resolved to 'adopt a pattern in which three subjects of equal standard may be prescribed for the first two years with facility for one major subject in the third year'. The Dean of Education, Dr. C.L. Anand while presenting his background paper suggested that the scheme of restructuring of courses at NEHU should have two important considerations viz. (a) to make the first-degree course more relevant to the overall local environment and to the developmental needs of the region and (b) to link education with work/field/practical experience and productivity. He went on to suggest that every undergraduate student should be given a grounding in the four important areas, namely;

(a) foundation course for 100 marks;
(b) core course in 3 subjects of equal value consisting of 3 papers in each subject. The foundation course and the core courses will be run for the first 2 years;
(c) applied studies/projects involving one major subject with 5 papers; and finally,
(d) involvement in a programme of national or social service.

Prof. Natarajan, Project Director of the AIU, in his opening remarks traced the basic concepts and principles of restructuring the +3 course, namely:

(1) they must be seen in continuity with +2;
(2) they must be less rigid and more flexible in terms of non-traditional subjects and combination of subjects;
(3) they must increasingly be interdisciplinary in character;
(4) they must be related to lives, needs, aspirations of people in the region; and
(5) they must be relevant and meaningful to the world of work thus making work experience as an integral part of the course.

He brought to the group experiences of several other universities in restructuring their existing +3 courses plus also restructuring a new pattern for 3-year programmes. He suggested to the group that many universities after deliberating on several alternatives (3 subjects major; two major and one subsidiary; and one major and 2 subsidiaries) accepted the 3 subject major as more relevant. He suggested to them that there can be 3 components in the courses, namely:

(A) An academic component consisting of a foundation course, one paper of 100 marks and core courses in 3 major subjects each subject having 3. He suggested that out of the 3 major subjects 2 can be traditional subjects while the third can be a non-traditional subject like Agricultural Marketing, Panchayati Raj, Rural Banking, Labour Welfare, Co-operative Management, Environmental Physics, Pharmaceutical Chemistry, Waste Products Chemistry, Forestry, Population and Health Education, etc;
(B) Applied component involving one major subject with project field/Laboratory and work experience including five papers; and
(C) An Extension Component with National/Social Service.

In order to fall in line with the restructured pattern obtaining in other universities and also the concept that +3 is more a terminal course than a feeder to the postgraduate courses, he suggested that in any one major subject, a student should have completed at least eight papers, a minimum requirement in several universities for admission to postgraduate courses.

While drawing up the list of core courses in 3 major subjects, he suggested that wherever possible, the third subject may be a non-traditional one, and whenever this is not feasible, atleast one paper in any major subject be a non-traditional paper and interdisciplinary in character. Finally he suggested that in addition to restructuring curriculum for +3 courses, restructuring the syllabus in each paper must be undertaken as a follow up activity to include :

1. all subject matter content to be expanded in clear, unambiguous units giving details of scope, breadth and depth of topics;
2. a list of abilities/skills (objectives of learning) to be acquired by students;
3. a list of activities of students in learning;
4. a list of methods/techniques of teaching;
5. time allocation;
6. classroom organisation; and

7. a list of type/frequency/nature of formative evaluation orientation of teachers in the implementation of restructured courses is to be undertaken on priority.

Small group meetings of different Boards were held in the afternoon to finalise details of the restructured pattern of course. Every subject Board identified three papers in their major subject as core courses and also one major subject with 5 papers from the third year and in this several options were thought about.

On the first day, members of BUGS in Social Sciences, Languages & Education participated. During the report back session, group leaders (Chairmen) presented details of their group work by and large adopted the major suggestions made in respect of restructuring. On the second day, members of BUGS in sciences participated and went through the same exercise.

Annual conference of IASP

(From our correspondent)

The seventh national conference of the Indian Association for the Study of Population (IASP) was held at the Sri Venkateswara University, Tirupati. The programme was jointly organised by the Population Studies Centre, S.V. University and IASP.

Altogether about one hundred and twenty delegates participated from India and abroad. From other countries, Prof. Caldwell, Pat Caldwell and Caldwell (Jr.) from Australian National University, Australia', Dr. John E. Brush, Rutgers University, USA, Lardinois Roland from France and Dr. Vidhya Abir S. Kansakar from Nepal attended the conference.

An exhibition on Population Education was arranged by the Centre which was inaugurated on the first day of the Conference by Sri V. Ramana Rao, Director, Finance and Planning Department, Govt. of Andhra. The conference itself was inaugurated by Sri M. Gopalakrishnan, IAS, Secretary to Health and Family Welfare, Govt. of Andhra. In his inaugural address he emphasised the difficulties experienced by the middle class and fixed income groups as a result of the population growth. Sri P. Padmanabha, Registrar General of India and President of IASP, in his presidential address vividly outlined various demographic features and findings of 1981 census. It revealed regional and statewise variations in population growth during the last decennial period. Educational attainment of women showed significant influence in depressing fertility in states like Kerala and urban areas, particulartly Delhi on the basis of 1981 census. He also outlined a few researchable themes which could be considered by the delegates.

In the first plenary session Dr. C. Chandrasekharan spoke on India's demographic challenge. Dr K. Srinivasan discussed population trends in India and Mr J.C. Caldwell highlighted the importance of strengthening micro approach in demographic research. In the second plenary session Dr. K. Srinivasan discussed the fertility trends, Dr. U.P. Sinha dealt with mortality trends, Dr. Mahadevan discussed certain major findings on determinants of Infant and Childhood Mortality in A.P., Prof. S. Mukerji and Sri. K. S. Natarajan focussed on patterns of migration and population projections respectively. Dr. B. D. Mishra highlighted trends in the growth and development of small towns and their policy implications.

During the remaining period three sessions worked parallaly. The groups discussed analysis of population growth, sources and quality of demographic data, population distribution, urbanisation and piligrim migration, literacy and population education.

Universities and preservation of eco-systems

The Planning Commission, has made financial allocations for coordinated action research projects for the Himalayan, the Ganga and the Western Ghats regions. It has actively involved the universities in these projects thus giving the universities an active role in national development.

Fourteen Universities have been involved in undertaking studies covering land use pattern, water, mineral and energy resources, documentation of flora and fauna, demographic data, environmental degradation etc of the Himalayan region. Based on the survey, interdisciplinary research groups of students would be formed.

Sixteen Universities located along the course of the river Ganga will be involved in controlling pollution of the

ASSOCIATION OF INDIAN UNIVERSITIES

Applications are invited from College/University Teachers for admission to a BASIC LEVEL CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS. The duration of the course is six months (Ist August, 1982 to 28th February, 1983). The course is being offered from different Regional Centres like Delhi, Bombay, (Madurai, Shillong & Hyderabad) and will be conducted and coordinated by the Research Cell of the Association. A personal contact programme at the centres is also planned.

Requests for prospectus and prescribed application forms, accompanied by a crossed Indian Postal Order for **Rs. 5/-** drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (80 paise) should reach the undersigned. The last date for the receipt of applications in the prescribed form is **June 30, 1982** for non-sponsored candidates and **July 15, 1982** for sponsored candidates.

Project Director (Examinations)
Association of Indian Universities,
6, DDA Building, Nehru Place, New Delhi-19

river, harnessing the river for agriculture, fisheries, forestry, etc and promoting river transportation.

Fifteen universities in the Western Ghats region (Comprising 150 taluks in Maharashtra, Karnataka, Tamil Nadu, Kerala and Goa) will undertake 12 broad areas of action research including the arts, dialects belief system, health and quality of life of tribals, impact of industries on ecology, effects of mining on ecosystem, etc.

The projects are likely to be completed in the next 3 years. Based on the experience gained further action will be taken in the Seventh Plan.

Biogas plant runs on excreta

The Centre for Environmental Studies, Perarignar Anna University of Technology (PAUT), Madras has designed and installed a biogas plant run on latrine wastes.

The plant which has been in operation in the hostel of the Madras Institute of Technology (MIT) at Chrompet, for the last few months has reduced the firewood bill of the hostel by one-third.

Dr. J.N. Ramaswamy, Professor of Public Health Engineering at the centre for environmental studies, said that the plant was built with aid from the Tamil Nadu Water Supply and Drainage Board and the Union Ministry of Works and Housing at a cost of Rs 50,000. Its maintenance cost worked out to Rs. 6,000 a year, he said.

Dr. Ramaswamy said the plant's efficiency could be considerably improved if human excreta was supplemented with cow dung.

He said barring some modifications, the design of the plant was similar to the gobergas plant, popularised by the Khadi and Village Industries Commission. The modifications were necessary as latrine wastes contained only one per cent solids while for optimum gas production the solid concentration should be about eight per cent.

Hence a special thickening device made of a circular concrete tank to recycle and separate the solids and an oxidisation pond to treat the discharged water from the thickening unit were incorporated in the design, he said.

After treatment in the oxidisation pond, the water was fit for disposal to any water source without fear of it getting contaminated. The MIT hostel plant discharges the water into a small stream nearby.

Dr Ramaswamy said the digested slurry from the plant was dewatered on a sludge-drying bed of sand and this was a good manure devoid of odour.

PF Act applicable to educational institutions

The provisions of the Employees' Provident Funds Act have been extended to cover educational institutions.

Under a notification issued by the Central Government recently, the Act will apply to any university, any college whether or not affiliated to a university, any school, whether or not recognised or aided by the Central or State Governments, any scientific institution, any institution in which research in respect of any matter is carried on, or any other institution in which the activity of imparting knowledge or training is systematically carried on, if the institution employs 20 or more persons.

Bharati memorial lectures

Twenty-five memorial lectures are to be delivered as part of the Bharati centenary celebrations of the University of Madras.

Announcing this at a meeting of the Bharati Centenary Celebrations Committee, convened by Dr. N. Sanjeevi, Convener, and Professor and Head, Department of Tamil Literature, Dr Santappa, Vice-Chancellor, suggested that a monograph on Bharati in Tamil and English should also be brought out. He indicated that financial assistance from the Government of Tamilnadu might be available.

Population studies centre

A full-time one-year multi-disciplinary post-M.A. Diploma course in Population Studies is to be started from July 1982 by the Madras University. Dr D. Sundaram, Professor and Head, Department of Sociology, will be in charge.

It was decided that proposals for population studies from the departments should be forwarded to the university through the centre.

Rs. 82 lakh electronics project for OU

The Electronics Commission, (GOI), has approved a project of Osmania University for the establishment of a Research and Training Unit for the Navigational Electronics at a total cost of Rs. 82.4 lakhs. The Department of Electronics (GOI), will fund the project as grants-in-aid to the Osmania University and Rs. 36 lakhs will be released as the first instalment. The duration of the project will be initially for five years.

The project aims to generate trained man-power in the broad area of navigational electronics by offering elective subjects in the existing under-graduate and post-graduate programmes of the Department of Electronics and Communication Engineering, Osmania University, Short-term courses, workshops, seminars and symposia will also be organised.

The other objectives of the project are: to undertake research activities encompassing recent trends in the field of Navigational Electronics and to create a team of experts in this area; to establish collaboration with other research and development establishments in the broad areas of navigational electronics and provide consultancy services.

S.V. university felicitations to Prof. B.R. Rao

The Department of Physics, Sri Venkateswara University College of Arts and Sciences, felicitated Prof. B. Ramachandra Rao, a Physicist and former Vice-Chairman of the University

Grants Commission, on his election as a Rajya Sabha Member from Andhra Pradesh. Prof. M.V. Rama Sarma, Vice-Chancellor of S.V. University presided over the function. Prof. S.V.J. Lakshman, Head of the Physics Department, welcomed the gathering. Prof. Rao said that more scientific and technological persons must be represented in Rajya Sabha in these days of scientific and technological advancement. He said that he would strive hard to impress on the Government the need to encourage science education and research in the country.

New courses at Madras varsity

The Vice-Chancellor, Dr M. Santappa, said after a Syndicate meeting on March 20, that the Syndicate had decided to start several inter-disciplinary courses from next year, such as M.A. in Tamil Literature and Culture, Tamil (Special), Continuing Education, Work Education, M.Sc. in Applied Sciences, Environmental Toxicology, Post-graduate diploma in Non-formal Education, Population Education and Education Technology.

Among the other courses are Certificate and Diploma courses in linguistics, comparative literature and Tamil Folklore, Japanese language and literature and social sciences, and a short-term part-time course in Polymer science.

Grant to Avadh university

The Avadh University has received a grant of Rs 2 crores for applied physics with electronics, rural economics, statistics and mathematics, history and Indian culture departments, auditorium and library.

Dr A.P. Mehrotra, Vice-Chancellor said that the total expenditure on the above departments would come to about Rs 2.5 crores of which Rs 1.64 crores would be spent on buildings and Rs 86 lakhs on equipments.

Dr Mehrotra said that the electronic department and library would be started from July 1 next.

Besides, a multipurpose hall for the university has been promised by the UP Sports Minister. A flying club has also been sanctioned by the Civil Aviation Department.

Punjabi Varsity Academic Council meets

A meeting of the Academic Council of Punjabi University, Patiala, held under the chairmanship of the Vice-Chancellor, Dr Bhagat Singh, recently recommended scrapping of the work-book system in the English examinations at the B.A. level.

The Council recommended starting of the Master of Laws (LL.M.) course with effect from 1982-83.

It was decided to award medals to outstanding students of Persian at the postgraduate level.

The council amended the Ph.D. Ordinance to the effect that a candidate enrolling for the Ph.D· degree after having completed his M. Litt/M. Phil would not be required to appear for the pre-Ph.D. test.

Systems Approach for Curriculum Improvement

(*Continued from page 308*)

nents, however, must interact because, if there is no interaction there is no organisation but simply a collection of components. When there is interaction between the components of a system, there is an exchange of information, i.e., communication or dialogue. The exchange of information results in organisation. For example, a school consists of a number of professional personnel. If there were no communication or exchange of information among the various members of this professional staff, they would simply be a collection of individuals engaged in executing school duties. They would not, however, be an organised professional staff. Thus interaction is an important characteristic of systems concept.

Mutual dependence exists between a system and the components and/or sub-systems of that system. The attainment of the objectives of the system is dependent on the processes that occur in each other camponent and/or sub-system. To illustrate this principle, the curriculum when regarded as a system consists of sub-systems that can be classified as vertical or horizontal sub-systems. In a traditional curriculum the vertical sub-system is the grade levels and the horizontal sub-system is the courses—e.g. mathematics, english, science etc. Here, each sub-system is dependent on the other sub-systems to accomplish the overall objective of the system.

Integration in a system denotes that the components of the system are unified; they constitute a whole. In curriculum, integration is promoted if a synthesis of learning occurs. Fragmentation of learning taught in isolation defeats integration. An interdisciplinary approach is one way by which integration should be accomplished.

The principle of integration like all systems, principles and concepts, should be extended to all dimensions and levels of curriculum. This is to say that not only is subject-matter involved but also curriculum design, methods, materials and, evaluation (i.e. components of a system for curriculum improvement).

Thus the systems approach to curriculum improvement, involves all the above steps or processes. The education system in our country is undergoing gradual changes and curriculum reform is carried out in tune with changing social needs. In this process, an important task of educational policy makers is to ensure understanding of various sub-systems or components within the curriculum framework before attempting overall curriculum changes. Systems approach to curriculum has far reaching implications in education. It provides guidelines for effecting changes with emphasis on integration, organisation and interaction, mutual dependence and purpose (objectives) principles. Systems approach is a technological process, which has the potentiality of providing an integrated framework for curriculum improvement in terms of overall educational objectives. ☐

[Courtesy : The Hindu]

News from Agril. Varsities

IARI develops new technique to determine oil content

The Nuclear Research Laboratory of the Indian Agricultural Research Institute, New Delhi, has developed a new technique to determine the oil content of oilseeds before crushing them. It is called the nuclear magnetic response technique. For the plant geneticists it is a rapid, non-destructive method to evaluate different samples of an oilseed and select those which contain a higher oil content to breed new varieties.

The technique is quite simple. A sample of seed is exposed to a pulsed (discontinuous) radio-frequency magnetic field. The hydrogen-nuclei in the oilseed (in the form of oil, water carbohydrates and proteins), absorb the radio frequency energy. This technique is likely to spread the development of high oil-yielding varieties of oilseed crops. The chemical method used so far is a lengthy process—crushing of seed, extraction of oil and its analysis.

New variety of sugarcane

Indian agriculture scientists have developed a short-duration variety of sugarcane which opens up new possibilities for farmers.

The new variety, COC 671, which has very good sugar content, will help not only in reducing the cost of cultivation but also permit cane to fit into a cropping system with cereals and pulses.

Other highlights of agricultural research in 1981-82 include release of a new rice variety for saline areas and another early maturing rice variety suitable for flood-prone areas, according to the annual report of the Union Department of Agricultural Research and Education.

The report says the main thrust of research in crop production during the year was on varietal improvement and development of new technologies to diversify agricultural production.

New type of maize developed at Almora

The Vivekananda Parvatiya Krishi Anusandhanshala, Almora, has developed a new variety of maize, especially for popcorn. Called 'VL Amber". The yield of this variety is 25 quintals per hectare in rainfed farms in the hilly region of U.P. and 15 quintals per hectare in the plains. The yield is about 36% more than the widely cultivated strain "College Synthetic". The tiny grain of "VL Amber" expands 20 to 25 times with 90 to 95% of it popping against 45 to 50% in the case of other varieties of maize. "VL Amber" has good resistance against leaf blight disease to which maize crops in the hills are susceptible. The new popcorn contains 9% to 10% protein minerals and a high percentage of energy-producing starches. The new strain has been released recently.

IARI scientists develop new rice varieties

The ever-increasing production of food, particularly of rice, in the country is mainly due to the success of scientists at the Indian Agricultural Research Institute in developing new varieties with high yields. The new rice varieties also possess resistance to disease and pests. Some of them have the basmati flavour.

The availability of these has made it possible to extend paddy cultivation to wheat-growing States like Haryana, Punjab, Rajasthan and Uttar Pradesh. Rice-wheat rotation of crops has become a common feature now and Indian farmers are busy throughout the year.

Scientists have recently developed some quick-maturing varieties which could be used before the start of the wheat sowing season. A 110-day-yield crop, Pusa 33, a Basmati type dwarf, is popular among farmers. Two other varieties, Pusa 150 and 167, with a duration of 120-125 days from sowing to harvest that suits the rice-wheat rotation belt, produces about six tonnes per hectare.

There are also other high-yielding varieties to suit soil conditions. such as Janaki for water-stagnant areas in Bihar and MO4 and MO5 which possess resistance to the brown plant hopper, a pest found in Kerala.

New technology to convert agricultural & forestry wastes

The Department of Chemical Engineering at the Indian Institute of Technology, New Delhi, has developed technology to convert agricultural and forestry wastes into pelletized fuels. Biomass is charred to break the fibre so that it is easier to briquette it without resorting to high pressure.

The char is moisturized and mixed with suitable binders.

Personal

1. **Dr. K. Gopalan took over as Vice-Chancellor of Cochin University.**
2. **Dr. Ganpati Chandra Gupta assumed charge of the post of Vice-Chancellor of Kurukshetra University on 20th April 1982.**
3. **Prof. K.S. Hegde has been re-appointed as Vice-Chancellor of Mysore University for a second term of three years.**
4. **Dr. M. Santappa, Vice-Chancellor of Madras University has assumed office as President of the Tamil Nadu Academy of Sciences.**

Science & Technology

ISRO may associate varsity scientists

The department of space is likely to associate university scientists for design, development and fabrication of payloads for satellites under the sponsored research (respond) programme of the department.

During 1982-83 the areas of thrust in respond projects would be reviewed and the programmes of initiating space technology and applications cells in the universities and other concerned research institutions would be taken up.

As a follow-up of various familiarisation of balloon, rocket and setellite facilities, a number of projects are likely to be selected from the university scientists for design development and fabrication of payloads.

The total outlay for space programme in the Sixth Plan period is Rs 392.72 crores. This marked a substantial increase in the outlay compared to Rs. 235 crores in the previous plan.

Institute of microbial technology to be set up

A new institute for microbial technology will be set up by the Council of Scientific and Industrial Research. A proposal to this effect has been cleared by the National Biotechnology Board.

The institute will concentrate on industrial applications of microbial technology with emphasis on production of antibiotics and alcohol. It will take into consideration the work already being done in related areas in other institutions of CSIR so that all the important areas of work in biotechnology can be covered and adequate support given to the other institutions wherever needed.

Science and citizen seminar

Under the joint auspices of the Andhra Pradesh Akademi of Sciences and S.V. University-contests in Elocution, Essay writing and Quiz programmes for junior college and high school student were held. Five junior colleges, and ten high schools participated. Contests in the exhibition of working models of Scientific interest was also held for 26 high schools in Chandragiri Taluk.

Fifty five prizes were given to the winners of these contests.

In this connection, a Seminar was conducted on 'Science and Citizen' in the Senate Hall of S.V. University. The Seminar was inaugurated by Prof. S. Bhagavantam, former Director General of Defence Science Research. It was presided over by Prof. M.V. Rama Sarma, Vice-Chancellor of S.V. University. Prof. B.R. Rao, Rajya Sabha member and former Vice-Chairman of UGC was the chief guest. Eminent scientists participated in the seminar.

Skill formation of rural workers

A case study of Haryana villages on "Influence of Metropolitan proximity on skill formation of rural workers" has just been published by the National Institute of Science, Technology and Development Studies of C.S.I.R. The report of just 22 pages has two pages of references, one full page figure giving a schematic representation of "Occupational changes among the rural workers over the generations" and eight tables.

The report begins with the genesis of concept of development of rural areas, outlines the objectives of the study, describes the methodology adopted for the study and draws conclusions after detailing the results of the study.

The study was confined to three villages each in the districts of Sonepat, Gurgaon and Rohtak, all in Haryana and in close proximity to Delhi.

The authors— A. Rahman, M.A. Qureshi, S.S. Solanki and V.N. Vashist—conclude that "The net impact of metropolitan proximity has been that the lust for the urban life and eagerness to adopt urban value systems were on the increase."

INTERNATIONAL MEETING OF UNIVERSITY ADMINISTRATORS

Following the success of the First International Meeting held at the University of Bath in 1981, the U. K. Conference of University Administrators have initiated Second International Meeting in August/September 1982 in Hong Kong. While the First Meeting was concerned with 'Management of Change' the Second Meeting will discuss three main themes on International and Regional Planning, Financing of Universities and Resource Allocation. Those who feel interested to contribute a paper or to attend the Conference may contact : **K. C. Kalra, Association of Indian Universities, Deen Dayal Upadhya Marg, New Delhi-110002.**

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Sociology

1. Rajguru, Indu. A sociological study of teenage offenders in custodial institutions in Indore. University of Indore. Dr. W.S.K. Phillips, Prof., Department of Social Research, Indore School of Social Work, Indore.

2. Santpur, Susheela Sureshrao. Hospital as a social system. Shivaji University. Dr. S.N. Pawar, Department of Sociology, Shivaji University, Kolhapur.

Political Science

1. Choubey, Ganesh Prasad. Jai Prakash Narain ke lok sangh siddhant ka auchitya evam vyvaharikta. University of Saugar. Dr. R.C. Dubey.

Law

1. Bhatnagar, Rajkishore. Studies on the genetically controlled markers in human blood and bloodstains using electro-phoretic methods. University of Saugar. Prof. D.P. Jatar, Sagar. Dr. H.L. Bami, Delhi.

2. Gaur, Bachcha Singh. A socio-legal analysis of economic crimes in India. University of Saugar. Dr. G.P. Tripathi.

3. Shukla, G.S. The comparative study of the law of divorce. University of Saugar. Dr. G.P. Tripathi.

4. Yadav, Harishankar. Studies on tool marks. University of Saugar. Dr. H.S. Maheshwari.

Commerce

1. Bal Krishan. Dividends equity price and growth. Himachal Pradesh University. Dr. M.K. Sharma.

2. *Kondle, Ramesh Chand. Lead Bank Scheme in H.P. :* Progress and prospects. Himachal Pradesh University. Dr. K.S. Sharma.

3. Muneet Kumar. Export houses in India : An analytical study of their functional pattern and future prospects. Himachal Pradesh University. Dr. M.K. Sharma.

4. Sharma, B.C. Strategy-technology in B.H.E.L. Himachal Pradesh University. Dr. M.K. Sharma.

HUMANITIES

Philosophy

1. Devasthi, Vineeta. Dwand nyaya : Nagarjun, Kant evam Hegel. University of Saugar. Dr. H.N. Mitra.

2. Dwivedi, Uma. Bharatiya darshan mein vyapit vimarsh University of Saugar. Dr. B.N. Sharma.

3. .Ghatle, Kantilal. Radhakrishnan ka smarg darshan : Ek sameekshatmak adhyayan. University of Saugar. Dr. Surinder Singh Negi.

4. Khanna, Neelam. A critical and comparative study of Marxian and Gandhian social and moral philosophy. University of Saugar. Dr. Pratap Chandra

5. Potdar, Babulal. Sri Aurobindo ke awang yog ka sameekshatmak adhyayan. University of Saugar. Dr. B.N. Sharma.

Language & Literature

English

1. *Agarwal, Meenakshi. A study of William Henry* Davies : The poet and his art. Meerut University.

2. *Garg, Madan Lal. Human relationships in the plays* of John Galsworthy. Meerut University.

3. *Geeta Devi. Theme of alienation in the works of* Shelley. Meerut University.

4. *Gupta, Madhu. The problem of evil in the plays of* Harold Pinter. Meerut University.

5. *Hari Prakash. Contemporaneity and modernity in* the poetry of Robert Browning. Meerut University.

6. Jain, Anand Prakash. Masefield as a writer of prose fiction. Meerut University.

7. Joshi, Satish Chandra. A study of Shakespeare's last plays in the light of Sanskrit dramaturgy. Meerut University.

8. Kamna. Tennyson's mind : A study of his philosophical ideals. Meerut University.

9. Kanwal, Gurdas Rai. The concept of man in the neo-classical literature. **D Litt.** Meerut University.

10. Kusum Lata Devi. Pamela Hansford Johnson as a novelist. Meerut University.

11. Modi, Suman. A comparative study of the modern problem plays in English and Hindi with special reference to Shaw, G. Barker Galsworthy, Seth Govind Das, Laxmi Narayan Misra and Udai Shanker Bhatt. Meerut University.

12. Negi, Pratap Singh. The theme of alienation in Keat's poetry. Meerut University.

13. Petrus, Patrick. A linguistic study of problems of Hindi medium students in learning English language at the school level. Meerut University.

14 Ranjana Kumari. Quest for values in the novels of R.K. Narayan. Meerut University.

15. Rastogi, Malti. The novels of Iris Murdoch : A critical study of the interrelationship between his ethical and aesthetic views. Meerut University.

16. Sharma, Pramod Chandra. E.S.L. teaching materials : Insights from error analysis. Meerut University.

17. Sharma, Ram Avtar. Romanticism in Sir Walter Scott's poetry. Meerut University.

18. Singh, Arvind Kumar. A study of human dilemma in the plays of Harold Pinter. Meerut University.

19. Voise, Omna. Self destruction as a theme in Neill's tragedies. Meerut University.

20. Yadav, Om Prakash. The nature of conflict in the novels of Richard Wright. Meerut University.

Sanskrit

1. Shashi Bala. A critical study of Bhatti kavya with special reference to grammatical analysis. Maharshi Dayanand University. Dr. Yajanveer, Lecturer Department of Sanskrit, Moharshi Dayanand University, Rohtak.

Hindi

1. Afridi, Nafis Ahmad. Muslim lekhkon ke Hindi katha sahitya mein samajik drishti. Meerut University.

2. Agarwal, Hari Shankar. Ramcharit Manas evam Jain Ramkavyon mein chritra chitran ka tulnatmak adhyayan. Meerut University.

3. Agrawal, Urmila. Satven dashak ke Hindi upanyason mein damptiye sambandhon kee abhivyakti. Meerut University.

4. Anuradha. Daswin kakhsha tak ke vidyarthion kee vartani kee bhulay : Ek nidanatmak vishleshan. Meerut University.

5. Atam Prakash. Ghaziabad janpad ke sthan namon ka bhasha vaigyanik adhyayan. Meerut University.

6. Bibua, Chanda. Hindi upanyason ke pathakon kee ruchi ka adhyayan : Meerut mandal ke purushon ke adhar per. Meerut University.

7. Baljit Singh. Bhagwati Charan Verma ke upanyason mein jeewan drishti. Meerut University.

8. Bhardwaj, Kamlesh. Daswin kakhsha tak ke vidyarthion kee vartani kee bhulay : Ek nidanatmak vishleshan. Meerut University.

9. Gaur, Sudha Bala. Tulsi kavya mein dhvani. *Meerut University.*

10. Gupta, Anita. Ras drishti se nai kavita ka mulyankan. *Meerut University.*

11. Gupta, Brij Bhushan. Balmiki Ramayan aur Ram*charit Manas kee prabandh rachna ka tulnatmak adhyayan.* Meerut University.

12. **Gupta, Neelam.** Adhunik Ram sahitya ka sahitya shastriya vishleshan : Dwivedi yug se nai kavita tak. Meerut University.

13. Gupta, Nisha. Premchandottar Hindi upanyason mein pratiyogatamkta. Meerut University.

14. Gupta, Veena Rani. Mannu Bhandari ke katha sahitya mein parivarik jeewan kee samasya. Meerut University.

15. Huda, Ram Rattan. Haryanavi lok geeton ka sanskritik adhyayan. Meerut University.

16. Jain, Seema. Bachchan kee kavya rachnaon ka jiwan vrittiya adhyayan. Meerut University.

17. Jani, Pushpa. Maithili Sharan Gupta ke kavya mein bimb yojana. Meerut University.

18. Jain, Reka. Kamayani ke patron ka manovaigyanik adhyayan. Meerut University.

19. Kaushik, Adityeshwar. Sur ke samanik sahityik vyaktitv ka anusheelan. Meerut University.

20. Kaushik, Anil Datt. Sathhottar Hindi upanyason mein rajnaitik chetna. Meerut University.

21. Kaushik, Sheo Kumar Sharma Tehsil Baghpat kee lok sanskriti. Meerut University.

22. Kavita Rani. Nirala ke kavya mein upman yojana. Meerut University.

23. Kulasri, Lokeshwar Dutt. Hindi kavya bhasha ka vikas : Arambh se bhakti kal tak. Meerut University.

24. Mahesh Chandra. Adhunik sandarbh mein swatantrayottar Ram sahitya. Meerut University.

25. Maheshwari, Manu Rani. Kamayani aur kanupriya: Ek tulnatmak adhyayan. Meerut University.

26. Mamoria, Archna. Ramkavya prampara mein prakriti chitran : Valmiki Ramayan, Raghuvansh paymcharieu evam chrieu adhyatatam Ramayan, Ramcharit Manas aur Ramchandrika ke sandarbh mein. Meerut University.

27. Mehta, Anita. Hindi ke prabandh kavyon mein Ramcharit Manas ka tutnatmak mahatava. Meerut University.

28. Paliwal, Rekha. Hindi ke pramukh ekankion mein prem samvedana. Meerut University.

29. Prabha Rani. Natakkar Prasad ke nari patron kee samajik astha. Meerut University.

30. Prem Chandra. Kavivar Bhayia Bhagwati Das : Vyaktitv evam krititv (Vikrami samvat 18vin shatabdi). Meerut University.

31. Prem Lata. Krishna sibitika katha sahity Meerut University.

32. Radani, Aruna. Padmakar ke kavya mein bhav chitran. Meerut University.

33. Ramesh Kumar. Kavya bhasha ke rup mein braj bhasha ka udbhav aur vikas : Arambh se bhakti kal ke ant tak. Meerut University.

34. Rashmi Lata Ila Chandra Joshi ke katha sahitya ka manovaigyanik adhyayan. Meerut University.

35. Sant, Dharam Singh. Dinkar sahitya mein trasad tatva. Meerut University.

36. Sharma, Ganga Sharan. Prabhat krit, ritambra mein kavya sanskriti aur darshan. Meerut University.

37. Sharma, Harish Kumar. Chhayavadi kavya hee rachna pravidha aur Jai Shankar Prasad. Meerut University.

38. Sharma, Jai Prakash. Hindi radio natak kavya : Samvedna aur shilp. Meerut University.

39. Sharma, Murari Lal. Athven dashak ke lalit nibandhon kee bhasha ka shaili vaigyanik adhyayan. Meerut University.

40. Sharma Murari Lal. Pashchimi paharon kee mandyali boli ka bhasha shastriya adhyayan. Meerut University.

41. Sharma, Narindar Kumar. Manak Hindi aur uske vividh rupon ka tulnatmak adhyayan. Meerut University.

42. Sharma, Ram Kumar. Dhananand ke kavya mein saundarya vidhan. Meerut University.

43. Sharma, Satya Narain. Punar jagran aur Hindi kavita san 1857 se san 1960 tak ka adhyayan. Meerut University.

44. Sharma Savita. Acharya Kishori Das Bajpai : Jiwan aur krititv ka adhyayan. Meerut University.

45. Sharma, Shivchanaran Lal. Hindi ke anchlik upanyason mein samajik mulya. Meerut University.

46. Shukla, Jagdish Kumar. Sathhottar Hindi kahani ka anusheelan. Meerut University.

47. Singh, Tilak. Ramcharit Manas tatha Padmavati kee bhasha ke vibhakti pratiyon ka tulnatmak adhyayan. **D.Litt.** Meerut University.

48. Singhal, Vijay Kumar. Kamayani kee antra kathaon ka sameekshatmak adhyayan. Meerut University.

49. Sinha, Anita. Hindi kavya mein Radha aur priya pravas. Meerut University.

50. Sirohi, Archna. Premchandottar Hindi kahaniyon mein shilpgat vaishishtha. Meerut University.

51. Suchitra. Vrindavan Lal Verma ke upanyason mein trasd. Meerut University.

52. Sukh Pal Singh. Adhunik sandharbh mein Tulsidas ka adhyayan. Meerut University.

53. Upadhyaya, Mahesh Chandra. Chhayavadottar Hindi geeti kavya mein nimn vargkosh : Sanskriti evam jiwan mulyon ka adhyayan. Meerut University.

54. Urmila Rani. Dinkar kavya mein auchitya vidhan. Meerut University.

55. Vats, Aditya Shankar. Chhayavadottar kavya mein manav vad. Meerut University.

56. Verma, Adarsh Kumar. Swatantrayottar Hindi katha sahitya ke vikas mein Himachal ka yogdan. Meerut University.

57. Verma, Harisharan. Haryanavi sanskar geeton kee sanskritik prishthbhoomi. Meerut University.

58. Verma, Veer Pal. Hindi reepotaj : Udbhav aur vikas. Meerut University.

59. Yadav, Abha. Hindi doordarshan natak : Ek anusheelan (1970-82). Meerut University.

60. Yadav, Adesh Kumar. Satven dashak kee Hindi kavita ka rajnaitik pripreksh. Meerut University.

Marathi

1. Joshi, Jayshree S. Tukaram : Kavya srishti, sampradayesadhna. Shivaji University. Dr. S G. Yadav, Department of Marathi, Vivekanand College, Kolhapur.

History

1. Agarwal, Ram Sewak. *Important trade centres and* routes in Northern India C.A.D. 500 to A.D. 1000 **D Litt.** Meerut University.

2. Bakshi, S.R. Non-cooperation Movement 1920-22. Meerut University.

3. Bhardwaj, Suresh Chandra. Gupta vansh ke itihaskar : Ek vishleshnatmak evam alochnatmak adhyayan. Meerut University.

4. Bhargava, Anubha. Sarojini Naidu ka bharatiya rajniti mein yogdan. Meerut University.

5. Bhatia, Chitra The Cabinet Mission 1946 : Problems of Indian unity and independence. Meerut University.

6. Chaudhary, Anita. Ghadhwal kaleen samajik sanskritik jeevan (11 vin aur 12 vin shatabdiyon mein). Meerut University.

7. Dwivedi, Indu Dhar. Uttar Pradesh ke sangrahalyon mein sangrahit baudh pratimaon ka samikshatmak. sanskritik evam pratibha shastriya adhyayan. (Dasvin shati isvi tak). **D.Litt.** Meerut University.

8. Gupta, Dinesh Kumar. Maurya-yugeen arthik itihas. Meerut University.

9. Gupta, Trilok Chand. A historical study of Labour movement in India from 1919 to 1929. Meerut University.

10. Jain, Narendra Kumar. Pashchimi Uttar Pradesh kee murtiyon kee pravattiyon ka kshetriya adhyayan : Pratham shatabdi isvi se dasvin shatabdi isvi tak. Meerut University.

11. Jambhekar, Ashok. Sardar Patel and integration of the Indian States. Meerut University.

12. Jauhari. Poonam. Growth of female education in North-Western provinces from 1854 to 1900 AD. Meerut University.

13. Kupil Muni. Viceroyality of Lord Wavell. Meerut University.

14. Kotnala, Sushil Kumar. Garhwal mein rajnitik chetna ke vikas mein budhijeevion ka yogdan (Varsh 1901 se 1947 tak). Meerut University.

15. Maheshwari, Nutan. Panjab aur pashchimi Uttar Pradesh mein Arya Samaj ka rashtriya andolan mein yogdan (1875 to 1926). Meerut University.

16. Malaiya, Asha Rani. A historical analysis of Jain reform movement. University of Saugar. Dr. G S. Tripathi.

17. **Mehta. Anjana.** *19 vin shatabdi mein Uttar Pradesh* kee Hindi patrakarita ka samajik-rajnaitik chetna mein yogdan. Meerut University.

18. **Mishra, Sukhdev.** Sagar sambhag kee prachin kala ka adhyayan: Arambh se madhyakal tak. University of Saugar. Dr. Sudhakar Pandey.

19. Misra, H.D. Prem Chand kee patrakarita ka samajik rajnaitik chetna mein yogdan (1920-1936). Meerut University.

20. Nandal, Balbir Singh. Raja *Mahendra Pratap: His* role in Indian freedom movement. Meerut University.

21. Patel, Sukhinder Kumar. The Communist Movement in India upto 1951 A.D. University of Saugar. Dr. D.B. Trivedi.

22. Puneet Kumar. *Role of the Moradabad District in* India's struggle for freedom 1919-47. Meerut University.

23. Rakesh Kumar. India's mercantile relations with the outside world (C. 322 to A.E. 550). Meerut University.

24. Ray, Prabir Kumar. British Policy towards Manipur *1824-1391. Meerut University.*

25. Saxena, Rajesh Kumar. Role of Maulana Azad in freedom movement. Meerut University.

26. **Sharma, Bhrigu Nandan. Indo-Burmese relation** 1820-1890. Meerut University.

27. Sharma, Satya Pal. Labour in Ancient India (C. 322 BC—A.D. 650). **Meerut University.**

28. Sharma, Subhash Chandra. India and World War II. University of Saugar. Dr. (Mrs.) K. Ganguly.

29. Shori, Anil Kumar. Role of Sir Tej Bahadur Sapru in the freedom movement of India. Meerut University.

30. Siddiqui, Aneesa. Beghel Khand ka rajnaitik aur sanskritik itihas: Praramb se le kar 13vin shatabdi isvi ke ant tak. University of Saugar. Dr. Sudhakar Pandey.

31. Swatantramani, C.P. Law and order in Madras Presidency 1890-1918. University of Saugar. Dr. D.B. Trivedi.

32. Tej Vir Singh. Sampradayik rajniti va Bharat ka vibhajan san 1940-47 isvi. Meerut University.

33. Virendra Kumar. Trade in Ancient India from C. 600 B.C. to A.D. 200 with special reference to commodities. *Meerut University.*

34. Virendra, Sushma. The concept of non violence in Ancient India upto C. 200 B.C. Meerut University.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Bhandari, Anuradha. An experimental study of personality, drive and age as *determinants of reminiscence in* children. Panjab University.

2. Bipin Kumar. Effect of hersaponin on acquired fear *in* albino rats. Banaras Hindu University.

3. Kumthekar, Medha Madhav. Impact of broken homes on the adjustment between spouses, between parents and children, and among children. University of Poona.

4. Mehta, Chandan Singh. Attraction as a function of caste and age. *Meerut University.*

5. Pandit, Meenakshi. Parent peer conformity and self image in adolescence. Banaras Hindu University.

6. Rajpal Singh. The effects of individual differences in trait anxiety any time pressure instructions on the free recall of semantic *and rhymed tasks. Meerut University.*

7. Sharma, Narinder Kumar. A comparative study of extroversion, neuroticism, achievement motivation and adjustment of tribal rural and urban youth of Himachal Pradesh. Panjab University.

8. Sudha Rao. K. Study *of the influence of continuous* evaluation on learning in school. University of Delhi.

9. Usmani, Shah Nawaz. Creativity in relation to alienation, ego-strength and intelligence in arts and science streams of intermediate students. Banaras Hindu University.

Sociology

1. Anand Swarup. Sources of alienation among students. Meerut University.

2. Batra, Surender Mohan. The place of livestock in the social and economic *system of a village in Haryana.* University of Delhi.

3. Ghanekar. Anjali Arun. Industrial management in Nasik: A sociological study of managerial role. University of Poona.

4. Gupta, Hari *Prakash.* Group dynamics among the Muslims in urban setting of Saharanpur. Meerut University.

5. Gupta Kuntesh. Family patterns and role definitions of *family members in Jodhpur city.* Meerut University.

6. Hamsa, N. Impact of socialization on political participation of women in an Indian urban community. Jawahar lal Nehru University.

7. Karwal, Surinder. Mate selection among Sikhs: A study *intergenerational differences in the criterion* and procedures. Punjabi University.

8. Pandey, Geeta. Some dimensions of transformations of a tribal society with special reference to Koles of Mirzapur. University of Gorakhpur.

9. Rao, Rajeswari. Women marriage and kinship network in an Indian slum. University of Poona.

10. *Saxena, Brijesh Chandra. Political elites in a former* princely town of Rajasthan. Meerut University.

Political Science

1. Chattopadhyay, Subhaschandra. Social and political ideas of Subhaschandra Bose. University of Calcutta.

2. Jasmil Singh. Communist party in Punjab: A study *of its organisation, ideology, strategy and support structure.* Panjab University.

3. Narang, Amarjit Singh. Origin and growth of Akali Movement and its role *in* Punjab politics. *University of Delhi.*

4. Narinder Kumar. Electoral administration in India with special reference to Punjab. Punjabi University,

5. Premdeo, Jai Prakash. Indo-Soviet relations (1965-73): A critical study in bilateral international relations. Meerut *University.*

6. Puri, Krishan Kumar. Analytical study of improvement trusts in the Punjab: A special study of at least 3 improvement trusts. Punjabi University.

7. Raja Mohan. C. Nuclear energy and the developing *nations. A study of technological and political implications.* Jawaharlal Nehru University.

8. Sahni, Pardeep. Regional political parties in North-Western India: Akali Dal in Punjab and National Conference in J&K. Punjabi University.

9. Sareen, *Premlata. Bharat mein sansadye prajatantar* ka vishleshnatmak adhyayan 1970 se ab tak. Bhopal University.

10. Sharma Prem Chand. Trade union *as a pressure* group. Panjab University.

11. Sood, P. Constitutional amendments and socio-economic change in India 1967-77. Meerut University.

Economics

1. Agarwal, Ramesh Chandra. Monetary policy and *debt management in India since 1951. Meerut University.*

2. Ananda Rao, Ronanki. Integrated rural development and the role of voluntary agencies: A case study of BCT Yelaman-chili of Visakhapatnam District. Andhra University.

3. Bandyopadhyay, Arun Kumar. An analysis of agricultural credit *with special reference to small farmers in West* Bengal. University of Delhi.

4. Bharati, Shobha Kant. Rural wage system: A case *study of* Madhubani Distt. Mithila *University.*

5. Biswas, Rama. The economics of brain drain with special reference to India. Meerut University.

6. Boocharum, Pharmaha Pragit. Economic and social changes in Thailand from 1939 to 1970. Magadh University.

7. Gupta, Kashav Chandra. Progress and prospects of pottery industry in Uttar Pradesh. Meerut University.

8. Kudesia, Asha. Cottage and village industries in Eastern U.P. Meerut University.

9. Lekhi, Romesh Kumar. Impact of technological changes on agricultural productivity in Punjab. Meerut University.

10. Nauriyal, Dinesh Kumar. Role of multinational *corporations in the developing countries with special reference* to India. Garhwal University.

11. Pandit, Shanta Babasaheb. Working of the Maharashtra State Financial Corporation from 1962 to 1979. Shivaji University.

12. Rana, Ram Pal Singh. An econometric analysis of centralization of higher education and its impact on economic growth. Jiwaji University.

13. *Redderppa Reddy, V. A study of instability* in agricultural growth in Anantapur District in Andhra Pradesh. Krishnadevaraya University.

14. Sharma, Madan Lal. Fertilizer industry in India: An appraisal. University of Rajasthan.

15. Shrivastava, Snehlata. Economic growth of MP during the five year plan. Bhopal University.

16. Singh, Prany. Finances of urban local bodies during plan period. University of Gorakhpur.

17. Subba Rao, Nune. Mechanisation and its effects: A case study of marine fisherman in Visakhapatnam. Andhra University.

Law

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Advt. No. Aca./III/7/82

Applications are invited for the following posts :

I. SCHOOL OF ENVIRONMENTAL SCIENCES

Associate Professor (Leave vacancy tenable upto 31.8.1982)

Job Description

To guide research and to teach Post-graduate, M.Phil. and Ph.D. students in area of Soil Pollution and Solid Waste Management.

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class Master's degree in a relevant discipline or its equivalent qualification from an Indian/foreign University.

(b) A doctor's degree or published work of an equally high standard ; and

(c) *About five years' experience of* teaching and/or research.

Desirable Qualifications

Experience in teaching and research at under-graduate and Post-graduate level in recognised University with *research publications in* national and international journals of repute. Experience of guiding M. Phil or Ph.D. students.

Areas of specialisation

Soil Pollution Control and *Solid* Waste Management.

II. SCHOOL OF LIFE SCIENCES

Assistant Professor

Job Description

To teach and conduct research in Organic and Radiation Chemistry and to work together with a transdisciplinary team in School of Life Sciences.

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class Master's degree in Chemistry or its equivalent qualification from an Indian/foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

(i) Proven interest in Cancer/Radiation Chemistry in relation to Life Sciences.

(ii) Some experience in interdisciplinary teaching/research.

III. SCHOOL OF SOCIAL SCIENCES

Assistant Professor in Science Policy

Job Description

The candidate is expected to conduct research and train personnel in the area of Science Policy Studies. He is to work as a Member of Inter-disciplinary team. *The areas of Studies are:*

Science Policy Planning and *Priorities; Technology* Assessment, Acquisition, adaptation, transfer and use Research Management, International Relations, Science and Society etc.

Essential Qualifications

(a) Consistently good academic record with at least a high second class M.A./M.Sc./M.Tech. in Social Sciences/Natural Sciences/Engineering or Technology;

(b) A doctor's degree or published work of an equally high standard; and

Desirable Qualifications

Some research and teaching experience in multidisciplinary areas with published work and proven capacity to organise and teach courses relevant to science policy studies

Provided that in the case of Assistant Professors if the Selection Committee is of the view *that the* research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed **provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition** that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments, until he fulfils *these requirements.*

Scales of Pay

1. Associate Professor/Fellow : Rs. 1200-50-1300-60-1900.

2. Assistant Professor : Rs. 700-40-1100-50-1600.

The selected candidates will be expected *to participate in the teaching* and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Centres of Studies.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to Scheduled *Caste/Scheduled Tribe* at the level of Assistant Professor.

Second class (mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications separate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Acad. Branch-III) *of the University by* sending him a self-addressed and stamped envelope (affixing postage stamps worth Rs. 3.25) of 23 cm x 10 cm. size. should reach the Assistant Registrar (Academic) Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067 latest by **20.5.1982.**

HARYANA AGRICULTURAL UNIVERSITY

CORRIGENDUM TO ADVERTISEMENT NO. 1/82

1. For post at Sr. No. 56 (Assistant Professor Vety. Medicine) discipline may be read as Vety. Medicine only.

2. Designation of post at Sr. No. 44 (Assistant Professor Zoology) should be *read as Assistant Scientist (Acarology).*

REGISTRAR

JAMIA MILLIA ISLAMIA

Jamia Nagar, New Delhi-110025.

WITHDRAWAL OF THE ADVERTISEMENT

One post of Professional Junior (Rs. 700-1300) and one of Professional Assistant (Rs. 550-900) advertised vide our advertisements No. 1/81-82 and 12/81-82 in the month of June, *1981/* October, 1981 respectively in various Newspapers are hereby withdrawn. This is for information of all concerned.

REGISTRAR

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA

P.O. MOHANPUR, DT. NADIA, WEST BENGAL

Advertisement No. APPTT/NT-3/82

Applications are invited for the posts of ASSISTANT COMPTROLLER in the scale of Rs. 700-40-1100-50-1600/- plus allowances as admissible under the rules of the Viswavidyalaya.

Essential Qualifications

(i) Honours Graduate in Commerce with good academic record;

(ii) Three years' working experience in supervision, control, planning and management of Accounts and Audit, preparation of Budget in Government, Quasi-Government or University or Commercial Insit.

Age : Age not below 30 years. Relaxable in the case of exceptionally qualified candidates.

Provided that experience may be relaxed on the recommendation of the Selection Committee in the case of candidate otherwise qualified. A higher initial pay in the scale may also be granted on the basis of qualification, experience and present emoluments.

Provided further that the prescribed qualifications may be relaxed on the recommendation of the Selection Committee in respect of the employees of the University who are otherwise found suitable for the post.

Persons, already employed, should apply through proper channel. Applications must be submitted in the prescribed form obtainable from the Office of the Registrar, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Dist. Nadia by depositing crossed Postal Order for **Rs. 8.00 (Rupee eight)** only drawn in favour of **Vidhan Chandra Krishi Viswavidyalaya** personally between 11 a.m. and 4 p.m. Application form, completed in all respects should reach the undersigned by **31st May, 1982.**

Application forms may also be obtained by post by sending a self addressed envelope stamped **Re. 0.65 (sixty five paise)** and the necessary Postal Order.

REGISTRAR

SAURASHTRA UNIVERSITY

RAJKOT-360005

Applications in the prescribed forms are invited for the undermentioned posts. Application forms along-with detailed requirements of qualifications and experience for these posts will be available from the Registrar, Saurashtra University, University Campus, Kalawad Road, Rajkot-360005, on sending a self addressed envelope of the size 23x11 cms with postage stamps worth **Rs. 1.60.**

Applications (seven copies) accompanied by Indian Postal Order for **Rs. 10/-** crossed in favour of the **Registrar, Saurashtra University, Rajkot, should reach this office on or before 31-5-1982.**

1. **Department of Economics**
   1. Professor—1
   2. Reader—1
2. **Department of Law**
   1. Reader—1
   2. Lecturer—1
      Specialization in
      (1) Constitutional Law
      (2) Mercantile Law
      (3) Jurisprudence
      (4) Taxation
      (5) Labour Laws
3. **Department of Chemistry**
   1. Reader—2
      Preferably Inorganic and Analytical. Those specialised in Theoretical and Marine Chemistry may also apply.
   2. Lecturer—3
      Those specialised in Physical/Organic/Inorganic / Analytical Chemistry may apply.
4. **Department of Gujarati**
   1. Reader—2
5. **Department of Sociology**
   1. Reader—1
   2. Lecturer—1

Pay Scale

1. Professor : Rs. 1500-60-1800-100-2000-125/2-2500.
2. Reader: Rs. 1200-50-1300-60-1600-assessment-60-1900
3. Lecturer : Rs. 700-40-1100-50-1300-assessment-50-1600.

The posts are permanent and the appointment shall be given on probation initially for one year which may be extended for a period not exceeding one year. The University reserves the right to make or not, appointments to these advertised posts and also reserves the right to make appointments to more posts than the number of posts advertised.

The initial appointment shall be with the minimum of the pay scale but in suitable cases higher initial pay may be considered. The allowances like D.A., A.D.A., H.R.A. etc. and benefits of Pension Scheme inclusive of Family Pension, Gratuity and General Provident Fund (or Contributory Provident Fund as the case may be for this University employees who have not opted for Pension Scheme) as per the Statute 219 of this University will be admissible.

Age ordinarily not exceeding 55 years. The age, educational qualifications and the experience may be relaxed in suitable cases. The employment shall be subject to the conditions of service rules for the University employees as may be amended from time to time.

The candidates already in employment must submit their applications through their present employers. Those knowing Gujarati and/or Hindi will be preferred. The candidates will have to travel at their own cost if called for interview.

V.M. Desai
REGISTRAR

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

HYDERABAD-500007

Advertisement No. VI/82

Applications on the prescribed form together with the application fee are invited for the following posts in the Institute service so as to reach the undersigned on or before **15-5-1982.**

I. Reader Fellows

(Scale of pay Rs. 1200-50-1300-60-1900).

1. Dept. of Methods
2. Dept. of Materials Production
3. Dept. of Extension Services
4. Dept. of Correspondence Courses.
5. Dept. of English Literature.

Qualifications

Essential

(a) At least a second class Master's Degree in English or allied subject. Good Academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (*i*) research or (*ii*) innovation in teaching methods or (iii) production of teaching materials or (iv) teacher training and extension work at secondary/college level

(b) About 5 years experience of teaching and/or research, with at least three years experience as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Desirable

(i) Specialised training in the teaching of English.

(ii) Experience of writing, producing and evaluating teaching materials.

II. Lecturers/Associate Fellows

(Scale of pay Rs. 700-40-1100-50-1600).

1. Dept. of English Literature
2. Dept. of Extension Services
3. Regional Centre, Lucknow/Shillong

Qualifications

Essential

(a) Consistently good academic record with first or high second class (B in the 7 point scale) Master's degree in English or in an allied subject.

(b) A doctor's degree or research work of an equally high standard.

Desirhale

For Post No 1

Special interest in Modern English Literature Criticism/ Stylistic/ Indian English Writing.

For Post Nos 2 & 3

A post graduate degree or diploma in English Language Teaching, English Studies and experience of production teaching materials in English organising ELT Programme.

Provided that any of the qualification prescribed in (a) above may be relaxed in the case of a candidate with research work of very high standard. Provided further that if a candidate possessing a doctor's degree or equivalent research work is not available or is not suitable, a person possessing a consistently good academic record (weightage being given to M.Phil/M.Litt or equivalent degree or research work of quality) may be appointed, provided he has done research work for at least two years or has practical experience in a research organisation/laboratory, on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equally high standard within five years of his appointment, failing which he will not be able to earn further increments until he fulfils these requirements.

General Information

Post under I (5) is a leave vacancy for at least one year Post Under (1 & 4) are permanent. All other posts are under plan and likely to continue. In addition, there is likelihood of additional temporary posts of at least one year duration under Readers Fellows and Lecturers / Associate Fellows.

Persons who applied for post No. 1 under (II) in response to our advertisement No. XVI/79 need not apply again.

The Institute pays allowances at Central Government rates with the benefit of Contributory Provident Fund-cum-Gratuity according to rules.

A higher start in the grade may be considered for specially qualified candidates.

Qualifications are relaxable in exceptional cases.

Due consideration will be given to candidates belonging to SC/ST for the posts of Lecturers/Associate Fellows.

Appointments to the posts of Fellows and Associate Fellows will be made on a contract for one year in the first instance, after which they will be considered for being appointed as Readers and Lecturers respectively on the recommendation of the Selection Committee.

Selected candidates will be expected to participate in the teaching and research programmes in other departments also

Selected candidates will be required to work at Hyderabad or at any of the Regional Centres of the Institute.

Applicants to substantive post will be on probation for one year in the first instance.

The Institute reserves the right to accept late applications in exceptional cases.

A candidate applying from outside India will be exempted from the submission of the application of the prescribed form and the payment of application fee.

Age of Retirement

60 years

Instructions

1. Separate applications should be made for each post enclosing **seven copies of the list of papers published** with full particulars along with **one copy of each publication.**
2. Candidates not found suitable by the Selection Committee for the post they have applied for may be considered for a lower cadre post.
3. Candidates called for interview from a place outside Hyderabad will be paid a contribution towards their travelling expenses at the rate of second class railway fare, including sleeper coach charges from the place of their work or residence, whichever is nearer, by the shortest route, subject to the production of a railway receipt.
4. A copy of the application form can be had from the Registrar, Central Institute of English and Foreign Languages, Hyderabad-500007, on payment of **Rs. 2/-** in person or by postal order payble to "Director, CIEFL" and by sending a self addressed envelope (10 cm x 23 cm) duly stamped and indicating the name of the post applied for.

I.V. Chalapati Rao
REGISTRAR

SAMBALPUR UNIVERSITY

JYOTI VIHAR: BURLA

Advertisement

No. 7941 Estt-I Dated 15-4-82

Applications in the prescribed forms with attested copies of mark sheets and certificates of each examination passed are invited for one post of ASSISTANT REGISTRAR (E.)

1. Qualification

(a) A Master's Degree and

(b) Two years experience in teaching or educational administration.

The academic qualification may be relaxed if a candidate has 5 years administrative experience in an educational institute/office.

2. Scale of Pay: Rs. 525-25-650-EB-40-850-EB-50-1300/-

The post carries usual dearness allowance and C.P.F. and gratuity benefits as sanctioned by the University from time to time.

Seven copies of application forms will be supplied from the University office to each candidate in person or on cash payment of **Rs. 15/-**, candidates who intend to receive their forms by post are required to send (a) Crossed Indian Postal Order of **Rs. 15/-** payable to Finance Officer, Sambalpur University, Sambalpur. (b) a self-addressed envelope (23 cm. x 10 cm.) with postage stamp worth **Rs. 5/-** affixed to it with the words "APPLICATION FORM FOR THE POST OF ASSISTANT REGISTRAR" superscribed on it. Money order or cheques will not be accepted.

The last date of receipt of application in the office of the University at the Sambalpur University, P.O. Jyoti Vihar, Dist. Sambalpur is **15.5.82.** All communications should be addressed to the Registrar, Sambalpur University by designation only.

The candidates will be required to appear for an interview at their own expenses before a Selection Committee. Intimation will be sent to eligible candidates for appearing at interview in due course.

The selected candidates must join within one month from the date of issue of appointment letter.

N. Mohapatra
REGISTRAR

UNIVERSITY OF NORTH BENGAL

Advt. 12/R-82 **Dated 8-4-82**

Applications in prescribed forms are invited for the following post.

Principal— post one (for the North Bengal University Law College) in the scale of pay of Rs. 1200-50-1300-60-1900/- with other allowances and benefits as per University Rules.

Minimum qualifications required: (i) LL.M. Degree (ii) Good academic record with 2nd class ('C' in the seven point grade) Master's degree from an Indian University in relevant subject or an equivalent degree of a foreign University (iii) Must have at least 5 year's teaching experience in a Law College (iv) Should be at least 40 years of age

If the selection committee is of the views that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard it may relax the qualifications prescribed in (ii) above.

Desirable: (i) Should have some experience of practice at the Bar (ii) Doctorate Degree in Law.

The post is reserved for candidates belonging to S.C./S.T. provided they fulfil the essential minimum qualifications laid down. In case qualified S.C./S.T. candidates are not available, the post will be treated as unreserved and hence non S.C./S.T. candidates may also apply.

Choice of selection committee may not necessarily be confined to those who apply formally. No application except in prescribed application forms may be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of **Rs 5/- (Rupees three for S.C./S.T.** candidates) in cash at the University Cash counter or by sending a self addressed stamped **Rs 1.40 (one rupee and forty paise)** envelope of 25 cm x 13 cm with crossed Indian Postal Order/Bank draft of **Rs. 5/- (Rupees three for S.C./S.T. candidates)** in favour of the University of North Bengal. Filled in application forms 6 (six) copies must reach the office of the Registrar, PO. North Bengal University, Dist. Darjeeling, West Bengal, pin 734430 on or before **20.5.82.**

None need apply who has applied earlier in response to our advertisement no. Advt. 8/R-82 dated **23.2.82.**

REGISTRAR

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH MAY 15, 1982

Mr. P. K. Thungon, Union Deputy Minister for Education, delivering the convocation address at the Avadh University.

IU Library

UNIVERSITY OF HYDERABAD

HYDERABAD-500134

ADMISSION NOTICE 1982-83

Applications in the prescribed form are invited for admission to the following courses for the academic session 1982-83.

1. **M.Sc.** courses in Mathematics, *Physics, Chemistry* and *Life Sciences* (Biochemistry, Plant Science and Animal Science).
2. M.A. courses in English, Hindi, Telugu, Urdu, Philosophy, Economics, History, Political Science and Sociology.
3. M. Phil courses in Mathematics, Computer Methods, Physics, Chemistry, Life Sciences, English, Philosophy, Hindi, History, Sociology/Anthropology, Telugu, Urdu, Economics and Political Science.
4. Ph.D. courses in Mathematics, Physics, Chemistry, Life Sciences, Hindi, History, Telugu, Urdu, English, Philosophy, Sociology/Anthropology and Political Science.

The eligibility requirements and other details are given in the admission bulletin. Application forms along with information bulletin can be obtained from the Assistant Registrar (Acad) on payment of **Rs. 4/-** per one set of form and one copy of the bulletin payable in person or by means of a crossed Indian Postal Order for **Rs. 5/-** (Re. 1/- for postage) in favour of the Finance Officer, University of Hyderabad payable at G.P.O. Hyderabad. Local sale of application forms/information bulletin at the University offices located in Golden Threshold, Nampally Station Road, Hyderabad and the University Campus, shall commence from **17.5.1982.**

Separa[illegible] d for each [illegible] cation fo[illegible] **R[illegible]**

(1) 20% of the seats in each course are reserved for candidates belonging to Scheduled Castes/Scheduled Tribes and 3% for physically handcapped candidates. Concession of 5 marks in the minimum required percentage will be given to Scheduled Caste/Scheduled Tribe candidates.

(2) Admission tests are tentatively scheduled to be held between 21-27 July, 1982 at Hyderabad. Candidates appearing for the admission tests (written test/viva-voce) from distances over and above 300 K.Ms. each way may be paid second class railway fare by shortest route on production of evidence of the journey performed.

(3) Candidates appearing for the final examination of the qualifying degree prior to the date of admission tests are also eligible to apply. Their admissions to the tests and further consideration will be purely provisional.

Application forms complete in all respects along with attested copies of mark sheets/certificates and self-addressed envelope (9″ x 4″) bearing stamps worth **Re. 1/-** and a crossed Indian Postal Order for **Rs. 5/-** as registration fee (non-refundable) drawn in favour of the Finance Officer should reach the Registrar, University of Hyderabad, *Central University (P.O.)*, Hyderabad-500 134, by **21.6.1982.**

LAST DATE FOR RECEIPT OF APPLICATIONS : **21st June, 1982.**

P.V. George
REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

HISSAR

Advertisement No. 5/82

APPLICATIONS invited for the post of Director of Research. Higher start outstanding qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc. according to University Rules. Applications of the candidates already in service must reach through proper channel upto the fixed date. Applications on prescribed form (obtainable *free by sending self-addressed unstamped* envelope size 23 x 10 cms. to Assistant Registrar(F), HAU, Hissar) accompanied by prescribed fee of **Rs. 10/-** in the form of Crossed Postal Order in the name of Superintendent(G), HAU, Hissar payable at HAU Post Office Hissar *should reach Registrar* by **7.6.1982.** (22.6.82 for candidates residing abroad). The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be superscribed as "APPLICATION FORM FOR THE POST OF————."

Basic: (i) Second class B.Sc. (Agr.), **B.Sc.** (Animal Science), B.V.Sc. and A.H. or B.Sc. (ii) Second class M.Sc. in any science related to Agriculture, Veterinary Medicine or Animal Science. (iii) Ph.D. in any science related to Agriculture, Veterinary Medicine or Animal Science.

Experience: (i) Should be an outstanding Scientist of national and international standing, with a distinguished record of research. (ii) Should possess ability to organise, supervise and co-ordinate scientific research, leadership, initiative and ability.

Note : One or more of the Essential Qualifications relaxable for candidates with outstanding attainments/experience.

Scale of Pay: Rs. 1500-2500 with unfurnished rent-free residence. Candidates *with outstanding record of research* administration/research achievements can be considered *for higher* start in the above scale.

REGISTRAR

REGIONAL ENGINEERING COLLEGE

WARANGAL-506004

Advertisement. No. 1/82

Applications in the prescribed form are invited for the following posts so as to reach the Registrar not later than **31.5.1982.**

(1) Professors of (a) Mechanical Engineering (b) Electrical Engineering (c) Electronics (for Problem Oriented Research Laboratory in Electronics *Instrumentation)* and (d) *Training & Placement (Scale Rs. 1500-2500).*

(2) Asst. Professors of (a) Civil Engineering (b) Mechanical Engineering (c) Electronics & Communication Engineering (d) Metallurgical Engineering and (e) Physics (Scale Rs. 1200-1900).

(3) Asst. Professor incharge of Workshops/Workshop Superintendent (Scale Rs. 1200-1900/Rs. 1100-1600).

(4) Lecturers in (a) Civil Engineering (b) Electronics and Communication Engineering (c) Mechanical Engineering (d) Workshops (e) Physics (f) Mathematics and (g) Computer Sciences. (Scale Rs. 700-1600).

(5) Officer-incharge of Examinations (Scale Rs. 700-1300).

(6) Asst. Registrar (Scale Rs. 650-1200).

The posts of Professors of Mechanical Engineering, Electrical Engineering, Asst. Professors of Civil Engineering, Mechanical Engineering and one post of Asst. Professor of Physics are temporary.

Higher start can be considered in case of exceptionally qualified candidates. D.A. and other allowances will be paid as per rules. Candidates may be offered lower posts, if not found suitable for the posts applied for.

In case of Lecturer posts, preference will be given to the Scheduled castes, Scheduled Tribes and Physically Handicapped candidates.

Application forms and details of qualifications and experience required for the above posts can be obtained from the Registrar by sending a crossed Indian Postal Order for **Rs. 2/-** drawn in favour of 'Principal, Regional Engineering *College, Warangal' payable at the Regional Engineering College Post Office along* with a self addressed **Rs. 1.50** stamped envelope (25 x 10 cms). Requisitions received with defective postal orders or insufficient postage will not be entertained.

PRINCIPAL

UNIVERSITY NEWS

VOL. XX No. 10
MAY 15 1982

A Fortnightly Chronicle of Higher Education
Price Re. 1.25

IN THIS ISSUE

Outlay on Education—Need for a pragmatic policy 336
Education of the Disadvantaged 338

Convocation

Education's Purpose 339
Science, Technology and Development 340

Agriculture

Konkan Krishi Vidyapeeth evolves High Yielding Cashew Hybrids 344
Farmers to host PAU foreign students 345
Kharif workshop at JNKVV 345

Campus News

Workshop on educational and examination reforms at + 2 stage 343
International conference on leaf protein research 346
PU Syndicate's recommendations 346
Exam malpractice cognizable offence 347

News from Abroad

Commonwealth Fellowship—1983 348
Literacy rate in Sri Lanka 348
Research in Progress 349
Theses of the Month 351
Additions to AIU Library 356
Classified Advertisements 357

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

Silver Jubilee
Sardar Patel University

A university township has grown up in less than three decades on what was "a waste land lost in crimes, squalor and darkness". This is Vallabh Vidyanagar where Sardar Patel University was launched on 31st October, 1955 and is now celebrating its Silver Jubilee.

The university has today about 1600 postgraduate students in about 18 different subjects and about 8,200 undergraduate students. The university has various faculties including Arts, Science, Home Science, Engineering & Technology, Education, Law and Commerce. It does not have as yet a Medical Faculty but very soon, it is hoped, facility for study of Medicine will become available. The university has 14 affiliated colleges and 16 postgraduate departments. It has, amongst others, a library of sound and an up-to-date instrumentation centre.

It has so far produced nearly 33,500 graduates and postgraduates.

In the souvenir brought out by the university on the occasion of its Silver Jubilee, Shri H.M. Patel has observed : "There are several unusual features in the establishment and growth of Vallabh Vidyanagar. The basis of financing it was unique". How ? Shri Patel points out that collective donation of adequate area of contiguous land in several likely locations were sought on condition that about 40 per cent of the land so donated would revert to the donors in the form of housing plots in the proposed residential areas. The balance of land was used for the educational institutions and for other civic amenities. As a result of development the value of the plots returned to the donors appreciated and this made the donors happy.

Local voluntary help and public spirit was available in abundance and the university came to be built up with zeal. "As far as possible, building components were made locally with local materials and skills. A cooperative society was established for this purpose, and it still functions satisfactorily", observes Shri Patel. "Yet another characteristic of Vallabh Vidyanagar is its aversion to ostentation. There was not much fanfare or blowing of trumpets when the work started in what was to become Vallabh Vidyanagar. The first sod was turned formally by a Harijan. The brick-kiln was inaugurated by another Harijan. A Muslim worker inaugurated the workshop, and a pious Brahmin laid the foundation of the building which became Vithalbhai Patel Mahavidyalaya".

Planning in Vallabh Vidyanagar was not restricted to its physical aspects. Planning of academic institutions was comprehensive and far sighted.

The university initiated the all-Gujarati arts degree courses both at the undergraduate and postgraduate levels. Semester system for Engineering and Science degrees was introduced. The Agro-Economic Research Centre is considered to be one of the 8 outstanding Research Centres in the country.

May the university grow from strength to strength.

Outlay on Education

—Need for a pragmatic policy

C. K. Renukarya*
T. M. Veeraprasad*

Now it is established beyond doubt, empirically, that improvements in the quality of human resources can have dramatic effects on economic growth. Human Resource Development is the process of increasing the knowledge, skills and capabilities of all the people in a society. In economic terms it could be described as the accumulation of human capital and its effective investment in the development of an economy.[1]

Adam Smith, the well-known economist had maintained that all of the acquired and useful abilities of all the (residents) inhabitants of the country as a part of capital.[2] However, it is known by now that measured by what labour contributes to output, the productive capacity of human beings is larger than all other forms of wealth put together.[3]

The logic for the case in brief is this : much of the economic growth of the developed nations can be explained by increased investments in land, labour and capital. But the rate of growth of such nations has far exceeded the returns from increased inputs in these conventional objectives of investments. This difference is mainly due to the added investment in the education of people, and the resulting increase in their knowledge, skills and productivity. Therefore, one of man's best investments, the evidence suggests, is in himself.[4]

Table I

Outlay on Education through Plans

Rs. in crores

1 Plan	2 Total plan outlay	3 Outlay on education	4 Outlay on higher education	5 Outlay on technical education	6 Col. 3 as % of Col. 2	7 Col. 4 as % of Col. 2	8 Col. 5 as % of Col. 2	9 Col. 4 as % of Col. 3	10 Col. 5 as % of Col. 3
First Plan	2069	152	13.70	20.2	7.35	0.66	0.976	9.013	13.29
Second Plan	4600	250	45.39	52.3	5.43	0.986	1.137	18.156	20.92
Third Plan	7500	497	75.5	130.0	6.63	1.007	1.73	15.191	26.16
Fourth Plan	15902	823	183.5	125.4	5.2	1.154	0.78	22.296	15.24
Fifth Plan	53401	1726	337.0	156.0	3.23	0.63	0.29	12.525	9.64
Sixth Plan	97500	2524	486.0	278.0	2.59	0.49	0.885	19.256	11.01

Source : *Five year plan drafts. Government of India Planning Commission.*
Note : *The percentages in columns 6-10 are worked out by the authors.*

Human resources are developed in many ways. The three important aspects of Human Resource Development are (a) development of education, (b) health and (c) on the job training, the most important among these being Education.[5]

Financial outlay on education in India

The plan documents have emphasised the fact that development of education in India is essential to faster economic development. However, a little investigation sheds light on the fact that education has been a highly neglected sector from the point of financial outlay. This fact can be amply proved if we look into the outlay on education during the plan period. Table I presents the total plan outlay on education relating to six five year plans in India.

No doubt, in absolute terms the outlay on education has increased from Rs. 152 crores in the first plan to Rs. 2,524 crores in the sixth plan. However, outlay on education as a percentage of total plan outlay has declined from 7.35 per cent in the first plan to 2.59 per cent in the sixth plan ! If we further analyse the outlay on education, it is observed that outlay on higher education as a percentage of total plan outlay has declined from 0.66 per cent in the first plan to 0.49 per cent in the sixth plan. Similarly, outlay on technical education as a percentage of total plan outlay has declined from 0.976 in the first plan to 0.285 per cent in the sixth plan. If we accept the fact that development of higher and technical education are sine-qua-non for economic development, the Indian plans present a very dismal picture. The imbalance in the allotment of funds between technical and higher education should be set-right by emphasising more on technical education which has been highly neglected. The outlays on education should have increased at a fast speed during the course of five year plans. This should have been particularly true with regard to higher education and technical education which are direct promoters of economic growth.

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The three outlay curves are presented in Graph I (*Given below*). EOC represents the total Education Outlay Curve. HEOC represents, Higher Education Outlay Curve and TEOC the Technical Education Outlay Curve. It may be easily seen that all the three curves have a declining trend.

Need for a pragmatic policy

It is true that some growth, of course, can be had from the increase in more conventional capital even in the absence of skilled and knowledgeable labour. But the rate of growth will be seriously limited. It simply is not possible to have the fruits of modern agriculture and the abundance of modern industry without making large investment in human beings.[6]

Above analysis shows that there is a need for revision in the funds allotted to education during the sixth plan. It may be emphasised that the outlay on education should be brought back, in percentage terms, to the first plan level at least. That is to say at least 7.35 per cent of the total plan outlay should be earmarked for education. This worksout to Rs. 7166 crores. This is the dire need of the hour. If this imbalance is not set right during the sixth plan period, it will have dire consequences on the future economic development of the country. Hence, there is every justification to claim a higher allocation on education at present to mitigate the future evil. This alone can ensure faster rate of economic growth in India.

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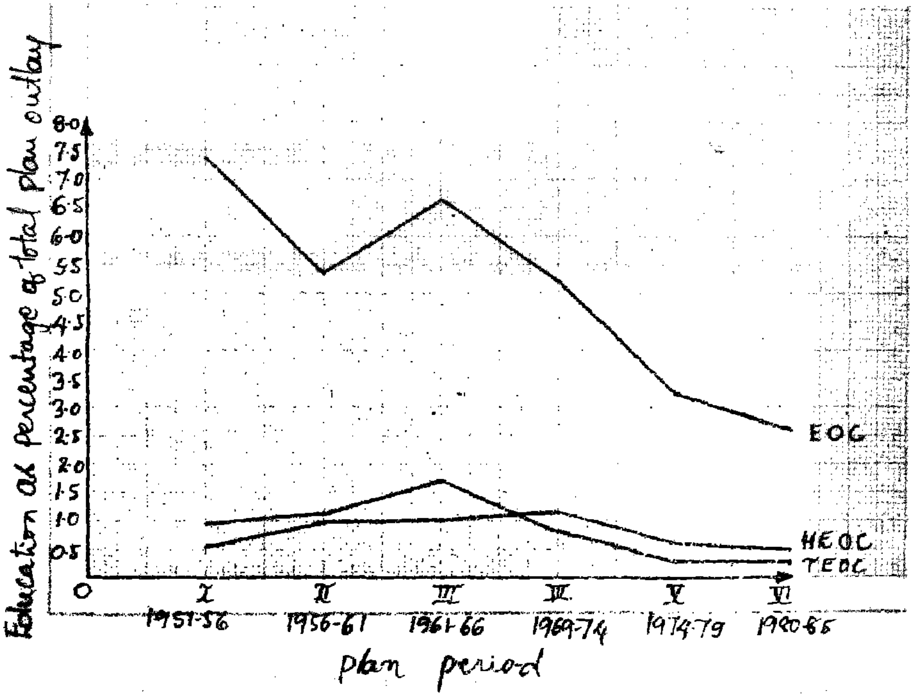

Education of the Disadvantaged

G. M. Malik*

Education has been conceived as one of the most powerful instrument for socio-economic upliftment of an individual and for bringing about socio-economic transformation on egalitarian lines. It was, therefore, quite appropriate that our Constitution framers incorporated two specific Articles to ensure that the States take active part in promoting education amongst the weaker sections of our population. Article 45 of Constitution of India states :

"The State shall endeavour to provide within a period of ten years from the commencement of this Constitution for free and compulsory education for all children until they complete the age of fourteen years".

In view of the specially weaker position of Scheduled Castes and Scheduled Tribes, Article 46 provides that :

"The State shall promote with special care the educational and economic interest of the weaker sections of the people, and in particular of the Scheduled Castes and Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation". Two and a half decades have passed since the Constitution was drawn. The progress achieved so far makes one pessimistic about the Constitutional objectives being fulfilled in the near future. The Scheduled Castes and Scheduled Tribes constitute 22.54 per cent of total population of the country. In the sphere of education despite the multitude of special efforts of the govt. and voluntary agencies in the post-independence period, their development has been slow and halting. Even after three decades of independence, the two communities taken together account for only 14 per cent of the total enrolment in various educational institutions in the country. The crude literacy rate as recorded in 1971 Census has been barely 14.7 per cent among Scheduled Castes and 11.3 per cent among Scheduled Tribes as against the all India average of 29.4 per cent.

We have been striving for an egalitarian society based on social and distributive justice. It is, therefore, our cherished commitment to pay special attention to the problems of Scheduled Castes and Scheduled Tribes who constitute one of the most neglected and dispossessed segments of our population.

Being disadvantaged in childhood may mean being disadvantaged throughout life. For the Scheduled Castes and Scheduled Tribes as indeed for all children of poverty, reserved seats in educational institutions and financial support do not constitute equal opportunity. Because of the harsh realities or their life many of them start losing the battle for high educational attainment in the pre-school entry years of their lives.

Researches and investigations conducted on the phenomena of drop-outs and of non-attending pupils and of wastage and stagnation show that these are mostly Scheduled Castes and Scheduled Tribes who are involved in the phenomena. It seems probable that the children belonging to Scheduled Castes and Scheduled Tribes may be suffering from disability that makes them lag behind.

A critical factor in the limited development of the Scheduled Castes and Scheduled Tribes seems to be the lack of early stimulation in the home. This limits the perceptual, cognitive and verbal development of the child during the critical formative years. Nutritional deficiencies cause varying degrees of mental retardation. The educational system has no control over this situation—the damage is often irreparable. The parent of the Scheduled Castes and Scheduled Tribes is not only far less effective as an directive agent for learning but is unable to provide the child with an environment adequate for learning. Books/Journals and newspapers are not simply available in his home. Academic competitiveness is a function of middle-class upbringing and not of lower-class upbringing.

There is evidence to show that, even when given full opportunities at the secondary level, the children drawn from the culture of poverty tend to make much less progress in their school work than other learners. It shows that there is a strong relationship between poor educational performance and material deprivation.

The schools themselves leave much to be desired. The Scheduled Castes and Scheduled Tribes students have to suffer many forms of invisible and visible discrimination and humiliation. Prof. Dube has rightly said. "The Tribal student is often taunted for being more like a jungle animal than a human being". The Scheduled Caste student carries with him the stigma of his low and impure birth. Their curiosity and scholarly ability notwithstanding, they rarely get equal treatment with those of their classmates who have a higher ascribed status. The situation in the school is thus weighed against them. Many of them naturally get discouraged and drop-out. It is a miracle that some of them transcend these barriers and give a good account of themselves.

The chief cause of the low achievement of the children of alienated groups is the fact that too many teachers and principals honestly believe that these children are educable only to an extremely limited extent. And when teachers have a low expectations level for their children's learning, the children seldom exceed that expectation, which is a self-fulfilling prophecy.

Someone has rightly said that, "too many of our schools are like tailors trying to fit the boy to the pants instead of the pants to the boy". The traditional middle-class curriculum is inappropriate and

(Continued on page 342)

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Convocation

Education's Purpose

"The graduates springing from the University should find no obstruction in attaining the real aim of their life. The address of invocation they have just accepted is, in fact, an invaluable asset for them. You prove yourselves worthy of this degree and I wish you to be able citizens of the society throughout your life. You have gained knowledge from your teachers with respect and reverence, and imbibed their qualities of civility, humility, zeal and selfconfidence along with scholarship. Now a vast field of practical life lies open before you. This is a testing period of your abilities, patience, perseverance and insight. It is by these that you have to solve the various puzzles and knotty problems of life. I wish you to illuminate the country with the enlightenment of knowledge hitherto attained by you and also make your present and future glorious. Let you live with peace and plenty and make others also live happily.

"Student life is a golden period of earning the lofty values of life. You got this opportunity and reaped the fruits of it. Now you have to regulate and plan up the life-style of yours which has a perspicuous vision and great aim. Although there is scarcity of residential institutes of education of the Gurukul pattern in modern times, there do still exist the institutes the environment of which purifies the mind of students and makes their life worthwhile. If the students, particularly, of the colleges situated in rural surroundings rise early in the morning, go to fields, do the manual labour and help to increase the produce of the crops, they grow healthier and smarter and also promote the prosperity of society. There kindles a developed understanding in you, and the new vistas of mind get opened, a feeling of self-sufficiency and self-dependence to meet the necessities of life is awakened in you. Besides, you avail of such opportunities as are conducive to discipline and elevate the standard of life. In campus life such occasions are plentiful. Yet an atmosphere for self-development can be created even in the absence of campus life.

The actual purpose of education is to civilise a man. Higher education does impart knowledge to us, but mere knowledge without utility is futile. Hence, the education should be useful to human society and should contribute to the economic development of society. We are to-day confronted with countless challenges regarding the set-up of education. On the one hand, the great traditions of old education are to be adopted and on the other we are faced with the challenge of competing with the standard of higher education of other countries. But, infact, even today unfortunately we are chained to the moorings of old and hackneyed system of education. We go on wrestling with the same pattern which, too, has been exceedingly twisted, rather disfigured by us. As a consequence, the problem gets more and more involved rather than solved. What and how is anything to be reformed is not clear.

"In our country there has been a record of Education Commissions. Contributions of Radhakrishnan and Mudaliar Commissions are important. But presently, the latest Kothari Commission's recommendations are serving as a guideline to act upon. Our National Education Policy, inevitably, needs reorientation as a result of which we shall have to include in it our new values and norms. Our minds, therefore, should be very clear about these values and norms.

"It is imperative, therefore, that the graduates today may not only concentrate on acquiring scholarship but also resolve upon fulfilling the needs and elevating the standard of society. They should readily sacrifice their individual self-interest for the upliftment of society. It is no child's play to lead and promote the social development. Knowledge coupled with methodology alone can make society march on. Knowledge mixed with experience and practicability is commendable. Whereas the study of ancient culture is of paramount importance, no less significant, at the same time, is the study of environment, Forestry, electronics and Bio-Chemistry which is of immense use to us in our daily life. As a conscientious youth you have to see with alertness that all the needs of peaceful co-existence are virtually fulfilled by your higher education received of late.

"The recommendations made by Kothari Commission in regard to the structure and curriculum of education for raising the standard of a high level are, indeed, praiseworthy. A uniform structure of education in whole country brings about national unity and integration. It is, indeed, distressing that material demands become our prime concern whenever we talk of any reformation.

"In the event of non-fulfilment of these demands we sit idle and indolent and deem ourselves incapable of making any endeavour for reformation. In sooth, it is the unflinching enthusiasm and human effort which is the greatest resource and force. This alone is a dynamic force which turns the impossible possible. After persuing the entire annals of humanity, one comes to conclusion that whenever some country has reached the pinnacle of glory and prosperity (whether quite in the beginning or after disasters) the achievement has been due to sheer zeal, effort and industry. Surely, there is no relevance of strike and agitations which hinder the progressive march of the nation. The character that brings the prosperity and progress of nation to standstill is highly abominable and detestable.

"Earning of knowledge and its dissemination is a continuous phenomenon in human world and the lion's share of its responsibility rests also on the shoulders of the learned teachers of higher education. Sedentary pursuits and ceaseless research work should be an incessant practice of a teacher of higher education. It was said that a new horizon of knowledge is opened after every ten years. But in the modern world of science and technology the exploration and dissemination of knowledge is speeding so fast that it undergoes a new change even every year in some sphere. It is the prime duty of an enlightened teacher to pursue restlessly the novel research work and never be contented with what he had studied in his days. Well-equipped himself with newest knowledge, he should take all care to disseminate it to his students in a comprehensible manner. Let him never be a standing wall between new knowledge and his inquisitive students. This would be most fatal for us.

"After your student career you will come to realise that like your kith and kin, your village and town, state and country are also, in some way or the other inseparably interlinked with you and you have your own duties to perform for them. There is no separate entity of hours without them. Their problems are your problems. You are one with them. The more deeply do you think of these things, the more effectively can you give your mite to them.

"The teachers should attune themselves to the newest trends and tones of education. Besides, they should establish close rapport with their students. It is their responsibility to teach them civility and modest behaviour to widen their mental horizons for security of the general values of life.

"We have enchained education very much in the fetters of formalism. It is a matter to be pondered over whether it does not mar the original capacity and creativity of students by examining them in a certain fixed term, by fixed course, in fixed period of time. It has often been marked that the persons having studied literature, art and music in their primary boyhood days have become scientists of eminence. But, unfortunately, there is no such scope in our old-fashioned education system. We have rather stopped even thinking of this that it is preferable to impart education according to the aptitude of a boy or a girl." (*Excerpts from the convocation address delivered by Mr. P.K. Thungon, Union Deputy Minister for Education, at the Avadh University.*)

Science, Technology and Development

"Every country and every society throughout history is set upon development. Development is not development of things. Development is development of people, their creative, innovative ability and problem solving capabilities, to make them self-reliant, to be able to stand on their own legs and to live with a sense of values of human dignity. Development is an integrated whole. It starts with people, their education, organization and discipline. Without these three, all resources remain latent, untapped and potential.

"In recent years, science, technology and engineering have become major tools in this development. Technology is mankind's main enterprise today. We cannot escape from its accelerating effect and massive impact on our outlook, life style and social, cultural, political and economic structures.

"Science is to know, to question, acquire and accumulate knowledge. Knowledge is power and guide to action. Knowledge of matter, space, time and other factors perceptible to sensitive method, decides to a considerable degree, the type of interaction of man with nature. A given science is not all pervasive or has all the solutions to social problems. On the other hand advances in science is directed by tangible and intangible social forces. The essence of science is scientific method and scientific attitude, an open, analytical, questioning, creative, critical, rational attitude.

"While the aim of science is to understand nature and things, the aim of technology is to produce goods, offer service and meet the present and potential human needs. The interaction of science with society has been through the medium of technology and engineering—technology is resources, people, needs, culture and environment specific.

"Engineering is a great profession. It is the privilege of the engineer to watch with fascination, a figment of imagination emerging as a plan on paper and realising it in a concrete shape of a building or bridge, bringing jobs home and comforts to people. Unlike the lawyer, quarrels are not his daily bread; unlike the soldier, destruction is not his purpose—construction is his purpose. His works are in the open for all to see. But then, that itself becomes a liability. "An engineer cannot bury his mistakes in the grave like doctors; he cannot argue them into thin air or blame the judge like lawyers; he cannot, like the architect, cover his failures with trees and vines; he cannot, like the politician, screen his shortcomings by blaming his opponents and hope the people will soon forget. Yes, the engineer simply cannot deny, he did it". If the project is a success, the politicians get a name plate; if it is a failure, the engineer gets the blame. But then, no one can take away the great joy and satisfaction from the engineer in seeing things of his creation.

"Science, technology, engineering and development are thus closely interlinked. They are the catalysts for growth and propellants for progress. The greater the nation's capacity to generate, transfer and utilize technology, the faster is its development.

"Manpower is not only the most important source of development but it is the objective of all development. Manpower training in science, technology and engineering — the dexterity and skill of population, the mobilization and interaction of such knowledge and skills are the foundations of nations wealth and are crucial to the level and rate of industrial and economic growth.

"The objectives of technical education should be to impart specialist scientific knowledge; to strengthen the ability of innovation, adaptation and optimisation in the matter of design and development system; to strengthen the perception of the technological resources and needs of the country, to develop competence to deal with real life problems and above all to set high standards—quality, integrity, character, competence and excellence—in all that we do.

"This is not only an age of science; it is also an age of democracy. The right to live and live with decency and dignity must be assured for every one. Dignity comes from self-competence, self-confidence and self-reliance. The coupling of such social values into science and technology is crucial. The goal of technical education must include such a 'development' philosophy for the technologists to be a development practitioner, acting as a social change agent. Any curriculum design for technical training as development leaders, should include a perspective to understanding human behaviour and culture; to be aware of the social environment in which they function and to cope with the administrative and managerial demands of their work environment. This is in addition to providing specialist knowledge and skill. Education must sensitize the technologist, particularly in a developing country, with the problems of ecology, employment, energy, economics and efficiency.

"Technical educational institutions would do well to accept Public Service as one of their major functions and Extension Service as the Third Dimension, in addition to Training and Research. Technology (including engineering) is a system composed of techniques and management—each a complex of physicomaterial and social cultural factors. Technology chain is composed of innovation chain, social action and service through extension. Technical education must relate to the total system. Extension service will help researchers, teachers and students to get into the real world; to learn the live problems; to get the feedback and to make the public aware of the institution with other development agencies and to serve the society. Extension service is a two-way communication to sell products and to help the mobility of personnel in teaching, research, industry and field activities.

"Presently neither 'private profit' nor 'public good' is enshrined in our technical education. When once the goal of development education is clear and accepted, the much needed changes both within and outside the educational system have to be brought about. Greater attention has to be paid to curriculum production, and better utilization of trained personnel with firm linkages between education, research and industry. It is time for the industry to realize the need for its greater involvement in technical education and to realise that 'to bring less than the most up-to-date and powerful engineering skills to bear on the problems of emerging countries is to restrict severely the rate of its technological development. The problems may be old, but they deserve most modern solutions". Modern solutions could come only through modern science and technology. A sustained national programme should be launched to stimulate more widespread understanding among employees of the nature and importance of technology dimension and of potential benefits to industry for employing scientists, technologists and engineers in a wide range of activities.

"It is often quoted that India has the third largest scientists and technical manpower in the world. But if the data are presented as S/T personnel per thousand population, India has only 3.8 as compared to 12 in USA, 19 in Germany, 81 in USSR and 185 in Japan. This calls for more vigorous measures to increase technical education and at the same time to increase the market demand for trained technologists and engineers and mobilise and utilise this manpower more fruitfully....

"Proper utilization and employment of trained technical manpower is most important. The need is clearly felt for setting up a technical manpower bank for manpower planning ; for thinking atleast 5-10 years ahead and developing appropriate signals between industry and education. Research on how to link technical education with employment potential has to be encouraged. It is also suggested that all developmental projects and industrial expansion should be linked up with an induction of competent technologists and engineers into the establishment. Both public and private sector undertakings should be asked to institute regular technical manpower audits and ensure they are making the best use of technologists and engineers as their key assets....

"Serious questions are being asked whether technology that produced weapons of war and techniques of destruction to conquer nature and subdue people, giving rise to disparities and domination, depletion of resources and degradation of environment, is the right tool to achieve the goal of development. There is now a feeling of dissonance, dissatisfaction, disassociation and disenchantment about the present mode of growth and development through technology. Doubts are expressed whether such science and technology are capable of self-regulation, provide an adequate sense of security to humanity, establish co-operation between scientists, preserve and protect nature and restore healthy environment.

"The challenge for technology is to free itself of these limitations and prove itself to be the noble inheritor of humanistic values. This has to be obtained by changing the directions and growth of science and technology and evolving new patterns that promote basic social values like equity, equality of opportunity, security, social justice, quality of life and health, education and employment for all. There can be no better social value than 'self-reliance'.

"The challenge now posed is obvious and the solution is in science and technology education. Science and technology have always been in the forefront to accept challenges and find solutions. The alternative is a disaster which is not acceptable to mankind and the scientific community in particular. It is now for the educational institutes of technology to create an environment, for training the minds, conducting research relevant to natural needs, and social values and utilise the technology knowledge to build the productive and organisational competence. The technical educational institutes should see that development problems should get the importance, support and recognition. The frontiers of knowledge are to be expanded in this direction and excellence can no more be for exclusive use. The education should strive to transform the value system accordingly.

"Technical education should be equipped to fulfil those new objectives of science and technology. There is an increasing erosion of faith in human capacity to solve the social problems whether intranational or international. The need is, therefore, greater than ever before, for technical education to reinstate and inculcate scientific outlook, representing as it does, humanity's assertion of being in charge of its destiny and not remain as a passive victim of the malevolence or benevolence 'natural phenomenon'.

"If only education could impart a scientific attitude, if only scientific attitude becomes a way of life, it will enhance the person's resourcefulness, enterprising activity, versatility, competence and self-reliance, it will cut the strangehold of superstition, rituals and taboos ; it will build an innate capacity to look for and about and utilise new ideas ; to better the best performance ; it will increase the rational attitude, and aptitude for discipline, reason, logic and experiment and change the way of life and life styles..." *(Excerpts from the convocation address delivered by Prof. Y. Nayudamma, Vice-Chancellor, JNU, at the Institute of Technology, BHU.)*

Convocation held at Madras

The Centre of Advanced Studies and Research, Post Graduate Complex, Hyderabad and Madras held its Convocation at Madras on 11th April 1982. In all 21 students got their M.A. Degree, 10 M.Phil and 3 were conferred Ph.D. degrees on this occasion. The convocation address was delivered by Shri Bhisma Narayan Singh, Union Minister of Housing. In his address he praised the role of the Sabha in founding the Centre of Advanced Studies in the south for the propagation of Hindi language and literature upto University level. This Centre is granted the status of an Institute of National Importance by an act of Parliament. The convocation was presided over by the Pro-Vice-Chancellor, Shri A.P.C. Veerabahu who thanked the chief guest and assured him that the Institute would definitely play a major role not only in propagating the literature of Hindi but also in developing Hindi as a pan-Indian link language.

Education of the Disadvantaged

(*Continued from page 338*)

inadequate as a means of pulling lower-class children up to the developmental level of their middle-class age mates. There is a vital difference between the dominant ethos of the educational system and the attitudes, ideas and skills of the disadvantaged child. The failure arises because the child when entering school, is expected to adjust to a system of attitudes and expectations which differ his own and his parents —a different ideology. This leads to a process of alienation between the teacher and the child—creating in the child an antipathy towards school and school system.

A compensatory education for these children is bound to fail since efforts to compensate for deficiencies are in reality attempts to supplant one culture from another. The United States has made impressive efforts to gaurantee equal opportunity to all, with special education programmes for the "disadvantaged" costing many million of dollars. The positive results of these programmes are much impressive than the amount of money and energy spent upon them.

Scheduled Castes and Scheduled Tribes are culturally deprived and socio-economically disadvantaged. Genuine equalisation of opportunity still remains a distant ideal. For an overwhelmingly large part of the Scheduled Castes and the Scheduled Tribes population the structure of economic opportunity continues to be as bounded and closed as before.

Any attempt to create equality through education within the accepted framework of gross inequality is doomed to fail and more tragically may become a kind of self-delusion.

Workshop on educational and examination reforms at +2 stage

A workshop jointly sponsored by Collegiate Cell and SCERT, Govt. of Andhra Pradesh, Education Department, was primarily intended to initiate teachers from various junior colleges at the +2 level into changes and reforms in education and examination at the +2 stage and bring to them the experience of Andhra Pradesh Residential School in the matter of open book examination for internal assessment test. One other objective of the workshop was to review the procedures and test material of the internal assessment scheme currently adopted by them. The proceedings consisted of a seminar type presentation in the areas of academic planning, following the Director of Higher Education's academic circular, lecture method and small group method technique, use of library and finally remedial classes for academically backward students. Also basic concepts and principles of internal assessment and question banking were formulated and presented to the groups. In the workshop sessions, the participants worked individually and in small groups and produced Unit Tests in various subjects following the ESO pattern (Essay, short answer and objective). A set of criteria of writing various types of items like objective, short answer and essay was also presented to them. Unit Tests prepared by various groups will be prevalidated by the Research Cell of the Association of Indian Universities and sent back to the Collegiate Cell. While inaugurating the workshop, the Minister of State for Education felt that education has not been given top priority and importance. Several constraints, according to him, exist with respect to higher education and some of these are: lack of finance, lack of equipment facilities, lack of suitable student/teacher ratio, lack of an environment that will promote students' thinking ability and eagerness to learn. He also felt that in order to sharpen the brains of students, teaching of Sanskrit should be promoted. He finally suggested that teacher training at college level and refresher courses for them for content updating and pedagogic training are to be thought of.

In his opening remarks, Prof. Natarajan commended the efforts of the Collegiate Cell and the Intermediate Board for undertaking experiments in the areas of internal assessment and open book tests. He, however, cautioned that open book tests, which are easy to prepare at the highest level, will be extremely difficult at the lower levels like the +2. He also presented some illustrative sample items in a few subjects which can form part of open book internal assessment tests.

This workshop makes the following recommendations :

Educational reforms

In the class-room situation, wherever and whenever possible lecture-cum-discussion method may be encouraged. Similarly notes taking habit by the student in the class may be encouraged rather than notes dictation by the teacher except where the latter is absolutely essential (like where the matter is not available in text books or where it needs updating etc.).

Examination reforms

While realising the need for examination reforms like Internal Assessment, Question Banking, Open Book etc. this workshop recommends a proper try-out before implementing these in all institutions. The try-out, may be made in institutions where there are ideal conditions of clse-room accommodation and teacher-pupil ratio. Open Book method may be applied to Internal Assessment part only.

If Internal Assessment is to be implemented in all Junior Colleges, overcrowding in classes is to be reduced and it is desirable that an ideal class-room strength not exceeding (60) shall be ensured.

The teachers concerned have to be given training before it is implemented. It may be useful to follow "Essay, Short-answer and objective", pattern (E.S.O.) in preparing Internal Assessment tests and the scheme may envisage three compulsory tests. In genuine cases of absence a repeat test a week later may be given. This scheme may be so worked out by the Board of Intermediate Education so as to make it open and provide necessary safeguards both to the teacher and the taught. It would be better if the Internal Assessment mark shown separately in the register if not taken into account for purposes of determining the pass/failure/class of the student at the public examination.

The scheme of Internal Assessment must be clearly mentioned in the College calendar and new entrants oriented in this regard.

Taking into account real perspectives of Internal Assessment the workshop strongly recommends that Internal Assessment is made progressively comprehensive to include periodical tests, lab/field work, such other personality traits like originality, interest, leadership, team work, etc. of the students which would really help the students but not that Internal Assessment which aims at periodical tests only.

In addition to these recommendations, it was also proposed to hold a 5-day workshop in Question Banking in the five major subjects of Mathematics, Physics, Chemistry, Botany and Zoology. □

News from Agril. Varsities

Konkan Krishi Vidyapeeth evolves High Yielding Cashew Hybrids

(From Our Correspondent)

The Konkan Krishi Vidyapeeth, Dapoli, Maharashtra, has recently released two high yielding cashew hybrids. These hybrids have been named as Vengurla-3 and Vengurla-4.

The Konkan Krishi Vidyapeeth has undertaken hybridization work at its Regional Cashewnut Research Station, Vengurla since 1970 to evolve bold seeded and high yielding cashew varieties. Vengurla-3 and Vengurla-4 have been developed and of these, hybrid Nos. 4 and 11 have been released.

Vengurla-3

This is a cross between Vengurla-1 and Vetore-56 types. The tree is moderately vigorous with semi-erect growth habit. At the age of 10 years, it has occupied 6.2 x 6.7 metre space with a height of 6.0 metres.

The average yield of this hybrid during the last 5 years, i.e., 6th to 10th year was 18.37 kg. per tree. This tree has yielded 20.37 kg. nuts during the 1980 season. The nuts are very bold in size (9.19 g. each), ash grey to brown in colour with 27 per cent shelling outturn. The apple is yellow coloured with a few pink streaks, oval in shape and medium in size weighing 78 g.

Harvesting starts from February and it is maximum in March-April.

Vengurla-4

This is a cross between Midnapur red and Vetore-56 types. The tree of this hybrid is medium in size with semi-erect habit occupying 9.3 x 8.8 metre space and 6.3 metre tall at the age of 10 years. The maximum harvesting is in March-April. The apple is small sized weighing 45 g., elongated in shape and yellow in colour.

The average yield of this hybrid variety during the last five years, i.e., from 6th to 10th years was 20.61 kg. nuts per tree. This tree gave 23.78 kg. nuts in 1980 season. The nuts are bold in size weighing 7.70 kg. each, brown in colour with shelling of 31 per cent.

Vengurla-3 and Vengurla-4 have given high yields from very early orchard life. They may yield much more in their advance age. Another feature of these hybrids is the bolder size of nuts which would fetch better price in the national and international markets.

IRDP seminar at PAU

A 3-day Seminar-cum-Workshop on Integrated Rural Development Programme was organised recently by the Punjab Agricultural University.

Mr. K.D. Vasudeva, Financial Commissioner for Development, Punjab, speaking at the Seminar said that over Rs. 9 crore had been spent on Integrated Rural Development Programme in the State last year. This programme was aimed at improving the economic conditions of the rural people, nearly 50 per cent of whom were below the poverty line. The field staff engaged in this programme should, therefore, work with dedication to achieve the objectives of this programme, he added.

Mr. G.L. Bailur, Joint Secretary in the Union Ministry of Rural Reconstruction, explained the concept and objectives of the IRDP and urged upon the officers to utilize the local resources and infrastructure for the uplift of the rural poor and to monitor the progress of the programme.

Dr. K.S. Nandpuri, Director of Extension Education of the PAU said that training was the most important factor for the success of this programme. PAU imparted training in various skills like bee-keeping, mushroom-growing, dairy-farming and poultry farming which could help the rural poor to earn more.

IARI develops two new varieties of gram

Two new varieties of gram developed by the Indian Institute of Agricultural Research, New Delhi, could well be the strains for the future.

The varieties BG-257 and BG, 261 have been able to resist blight and butrytis which are said to have damaged most of the standing gram crop in Punjab, Rajasthan and Haryana. Dr P.N. Behl, National Research Fellow of IARI who has developed the new strains, claimed that the crop of new strains in the Institute as well as in trial farms in Punjab, Rajasthan and Haryana had proved that it could resist successfully the two diseases.

Dr Behl expects an average yield of 30 quintals per hectare from the new varieties. However, Dr H.K. Jain, Director of IARI, claimed that the new varieties which were the result of 10 years' work, were "close" to scientists' dream of having gram of 50 quintals per hectare yield potential.

New variety of maize

A new early maturing variety of maize 'Tarun' has been released by the Central Variety Release Sub-Committee in the entire Indo-Gangetic plain except Rajasthan thus meeting the long-felt need for an early maturing high yielding maize variety.

Tarun, developed by the maize group of Pantnagar University, matures in 85-90 days and yields 40-45 quintals per hectare. Its grains are bold and orange in colour and have a high degree of resistance to disease.

Veterinary polyclinic at MPAU

A Veterinary Polyclinic, a long-felt need at the Central Campus has been established Dr. O.P. Gautam inaugurated. the polyclinic and expressed satisbaction at one more stride taken by the MPAU and said that the Polyclinic will serve the All India Co-ordinated Cattle Improvement Project based at Rahuri which is one of the best in the country by making available integrated cattle health care facilities under one umbrella.

Post-harvest technology

A 5-day workshop attended by 10 Asian and African countries including India recently concluded at New Delhi. The workshop discussed in depth the works so far carried out for preventing post-harvest losses in foodgrains and perishables.

At the end of the deliberations the workshop recommended setting up of a National Institute to prevent post-harvest losses for durables and perishables. The proposed institute would help in training for the other African and Asian countries the personnel needed for checking post-harvest losses.

Farmers to host PAU foreign students

The Punjab Agricultural University has a proposal to lodge its foreign students with farming families wishing to host them during the trimester break in May and June.

This was disclosed by the Vice-Chancellor, Dr Sukhdev Singh, recently at the Annual Function of the foreign students. The university has 257 foreign students from 18 countries. A separate hostel for them called the International Hostel is nearing completion.

New varieties of vegetables released

Two new varieties of vegetables, one of okra (bhindi) and the other of summer squash (chappan kaddu) have been released by the Department of Vegetable Crops, Landscaping and Floriculture of the Punjab Agricultural University, Ludhiana, for general cultivation. The "Punjab Padmini" bhindi has an yield 40% higher than the standard 'Pusa Sawani' variety. It is ready for the first picking in 60 days and yields 42 quintals per acre.

The 'Punjab Chappan Kaddu-I' is a new high-yielding variety of summer squash. The vegetable is green, disc-shaped and mildly ribbed with a flat stem-end. It is resistant to downy mildew and tolerant to virus, powdery mildew and red pumpkin-beetle. Since it is an early maturing variety, it is ready for the first harvest in 60 days and yields 94 quintals per acre.

Kharif workshop at JNKVV

While inaugurating the 4-day All India Kharif Pulses Workshop of the Jawaharlal Nehru Krishi Vishwavidyalaya organised under the joint auspices of the ICAR and the JNKVV, Prof. S.V. Arya, Vice-Chancellor, said that the pride of place to development and production of pulse crops had been given in the 20-point programme. He stressed the importance of pulses in human diet and advised the agricultural scientists to work hard to make pulse growing a remunerative proposition to the farmers.

Dr. Satish Chandra, project coordinator of the All India coordinated pulse improvement project (ICAR), Kanpur, giving an overall picture of the pulse research in the country, said that Madhya Pradesh was a pulse state and had a leading role in pulse development. He strongly felt that each state must recognize its own potential of pulse crops production and provide necessary support for its development. He assured that ICAR would not hesitate in providing additional support. He said that there were a number of possibilities through which the scientists could boost up the productivity and the production and also provide base for extension people. He informed that the pulse improvement project has since come to a take-off stage.

Dr. B.P. Tiwari, JNKVV Dean of Agriculture Faculty, in his presidential address, informed that the idea of regional integrated approach came to Madhya Pradesh 18 years back when in 1964 five regional research stations were established. He said that research since then was so advanced that in future the distinction of Kharif and Rabi in some of the crops may go away. In regard to infamous Lathyrus, he said, that there was a need to evolve a variety which was less in toxin.

About 200 delegates from all parts of the country participated in the workshop.

PAU farmers' committee meets

The Farmers' Committee of the Punjab Agricultural University met under the Chairmanship of the Vice-Chancellor, Dr Sukhdev Singh, to discuss various problems faced by the farmers of Punjab. The farmer-members voiced their concern over the non-availability of weedicides in adequate quantities which led to many malpractices by some unscrupulous dealers. The Vice-Chancellor assured the farmers to take up the matter with the Government as the University was not having a regulatory function. He, however advised the farmers that weedicides should be used where human hands could not reach. He cautioned the farmers against indiscriminate use of chemicals.

The members wanted that information about the closure of canals should be given on AIR as was being done regarding electricity supply. The Committee stressed the need for reviving Canal Advisory Committee at the division level.

For checking the decline of kinnow orchards in Punjab the Committee wanted the Punjab Government to enforce the Punjab Nursery Act strictly so that the farmers could get healthy and true-to-type nursery plants.

Campus News

International conference on leaf protein research

An International Conference on Leaf Protein Research is to be held from 5 to 8 October 1982 at Aurangabad under the host-auspices of the Botany Department of Marathwada University Aurangabad. This is being organised by the Society for Green Vegetation Research and co-sponsored by the Indian Universities and institutes involved in leaf protein research. Conference programme includes 5 scientific sessions covering diverse aspects of leaf protein research and studies, viz. screening of vegetation for choice of raw materials, cultivation and agronomic studies for assessment of yields of leaf protein, technical and technological aspects of processing and production, nutritional and biochemical investigations for quality assessment and improvement, and the results of bulk production and utilisation studies. Last day has been kept aside for equipment demonstration and farm visits. Arrangement for a post-Conference tour is being made. Intending participants are requested to write as soon as possible and send the paper-abstract before July-end.

The organisers, with no funds for travel and other grants, will support requests being made to the unding agencies. British Commonwealth Foundation will sympathetically consider application for travel grants from the citizens within the Commonwealth. F.A.O. suggests for the people from developing countries to make request directly through their national authorities for use of UNDP funds.

More details can be had from the following Conference Secretariat: (1) Organising Secretary: Dr. Narendra Singh, Central Food Technological Research Institute, Mysore-570013 India, Local Secretary: Dr R.N. Joshi, Botany Department, Marathwada University, Aurangabad 431004 (India), International Advisor: Prof. N.W. Pirie, F.R.S. Rothamsted Experimental Station, Harpenden AL5 2JQ U.K.

PU Syndicate's recommendations

The Panjab University Syndicate recently decided that bonafide residents of Punjab, Haryana, Himachal Pradesh and Union Territory of Chandigarh, would henceforth be permitted to appear in M.A. Arabic examination as private candidates.

Scheduled tribe students of Arunachal Pradesh would be allowed to appear in the M.A. examinations as private candidates. This facility is also available to similar candidates of Punjab, Haryana, Himachal Pradesh and Union Territory of Chandigarh.

The recommendations made by the committee regarding restructuring of courses at the first degree level have been accepted. This brings about a long standing change to incorporate in the courses advances made in the various academic disciplines.

A University Medal would be awarded to a student standing first in the M.Sc. Nursing examination.

The Directorate of Correspondence Courses would offer Honours Courses in Hindi and Punjabi for regular students of affiliated colleges.

Post-centennial silver jubilee celebrations of Bombay Varsity

The University of Bombay is celebrating its Post-Centennial Silver Jubilee. As part of this celebration a talk was recently delivered by the Union Home Minister, Mr. Zail Singh, on "National integration and the rôle of universities". The Home Minister urged the educationists to correct the distorted history of the country created by the alien rulers and mould the thinking of the youth to improve the lot of the masses.

He appealed to the student community to protest against the intra-religious clashes and other incidents which undermined the unity of the nation.

New university inaugurated in Tamil Nadu

On April 30, a new University—Bharatidasan University — was inaugurated at Tiruchirapalli, Tamil Nadu. While inaugurating the university, the Chief Minister of Madras, Mr. M.G. Ramachandran, said two more universities would be started in the State.

The Union Planning Minister, Mr. S.B. Chavan, while laying the foundation stone for a students' hostel at the newly inaugurated university said that government expenditure on education had increased from Rs. 78 crores in 1950-51 to Rs. 3,746 crores in 1980-81. He further said that 85 per cent of the total number of children in the 6-11 age group and 44 per cent in the 11-14 age group were enrolled in primary and middle schools.

A 500-acre site is to be developed as campus for the university.

Special cells in 48 universities

Fortyeight universities have set up special cells to watch the progress of implementation of various benefit measures for scheduled castes and scheduled tribes.

The University Grants Commission has asked the universities to reserve 20 per cent of seats in hostels for scheduled castes and tribes students. Ten per cent of all fellowships awarded by the Commission at various level have been reserved for them.

Fifty junior fellowships, 20 post-doctoral fellowships and 20 research associateships have been instituted for scheduled castes and scheduled tribes specifically.

Women's varsity at Kodaikanal

The Tamil Nadu Chief Minister stated recently that two more universities would be established at Salem and Tirunelveli. "We want to launch the proposed Alagappa University at Karaikudi within a year," he added.

The Chief Minister said the proposed women's university would be located at Kodaikanal. Women scholars from various countries would learn and pursue research in Tamil language in the university. The venue had been chosen to facilitate their stay, he added.

ISSC Award

The Governing Council of the Indian Society for Studies in Cooperation has decided to award this year the Shripad Subrao Talmaki Memorial Prize of the value of Rs. 1000/ to a Researcher who has done notable and original research, fundamental or applied, in the field of Co-operation. The Council invites submission of research work in English in the form of either Book, Monograph, paper, published or Manuscript—completed during July 1981 to June 1982. The Research work should reach the office of the Society on or before 31st August 1982. Rules governing the award of the prize and other details can be obtained from the Secretary, Indian Society for Studies in Cooperation, C/o The Maharashtra Rajya Sahakari Sangh, Ltd. 5, B.J. Road, Pune-411 001.

Exam malpractice cognizable offence

The Karnataka Government has promulgated an ordinance to prevent malpractices, including copying in public examinations. It is the first government in the south to do so.

Under the ordinance any unfair means in examinations will be a cognizable and non-bailable offence. The ordinance also makes cognizable any offence in regard to issuing, procuring and leakage of question papers.

An area within 100 metres from an examination centre will be declared a prohibited area, except for authorised students and teachers.

Teachers refusing to do examination duty will be liable for punishment which may be simple imprisonment up to three months of fine ranging from Rs. 500 to Rs. 3,000.

The examinations listed by the ordinance include all University, pre-university, S.S.L.C., technical and vocational examinations.

Seminar on library management

The Centre for Management of Productivity, Bangalore, in associate with the Indian Institute of Management, Bangalore, proposes to organise a 2-day seminar on Management of Libraries and Information Services on May 22 and 23, 1982.

The objective of the seminar is to highlight the need for reorientation in the working and administration of libraries with the aid of modern management techniques. It also aims to (i) make participants aware of the emerging role of libraries and information services in the context of growth of education, information explosion and technological advancement; (ii) enable the participants to appreciate the gap existing between the expectations and performance of libraries and to explore possibilities of bringing it by recommending professionalisation of the function; and (iii) provide the participants with the concepts and techniques of scientific management for application to the libraries with a view to raising productivity.

University librarians, documentation officers, Information scientists and all others concerned with the acquisition, dissemination, and transfer of knowledge an information are likely to participate in the seminar.

Openand Women's universities in AP

According to reports, Andhra Pradesh is likely to have an open university soon. The Government is also awaiting a clearance from the University Grants Commission for setting up a Women's University. Last year, 31 junior colleges were started in Andhra Pradesh. Educational institutions started in the State during the last four years exceeded the number of educational institutions existing before 1978.

IIT students to trek Himalayas

About 280 students of the Indian Institute of Technology, Bombay, almost 10% of the student population of the Institute, will undertake expeditions to the Himalayas this month.

A 13-member team including ten students, two alumni and a doctor will be in the Kumaon Himalayas bordering Tibet and Nepal undertaking a major mountaineering expedition.

The second team will have a 25-day trekking programme mainly intended to serve as an introduction to the Himalayas.

Ambedkar university in Maharashtra

The Maharashtra Government has taken a decision to set up a Technological University at Lonari in Raigarh District, Maharashtra. The university is to be named after Dr. Babasaheb Ambedkar, Land acquisition work at the location of the proposed university is already on. Clearance of the University Grants Commission is awaited. The university is likely to start functioning from next academic year.

UP grant for three universities

The U.P. Government has sanctioned Rs 2 crores each to the Universities of Avadh, Rohilkhand and Bundelkhand.

The three universities were established in 1975 for removing regional imbalances and backwardness in education.

Staff strike banned at Agra university

The State Government of Uttar Pradesh recently invoked the U.P. Essential Services Maintenance Act to ban strikes in all non-teaching services of the Agra University and its affiliated degree colleges.

New colleges in Andhra Pradesh

A degree college in Ayurvedic Medicine, to be run by the Tirumala Tirupathi Devasthanam, will start functioning at Tirupati from the next academic year. Andhra Pradesh already has three Ayurvedic Colleges—one each at Vijayawada, Warangal and Hyderabad.

A Homoeopathic Medical College is also to be established by next academic year and is likely to be located at Cuddapah or Proddarur. Another Homoeopathic Medical College would be established in the Rayalaseema region.

Welfare officers training at TISS

A training programme for 27 recently appointed welfare officers of the Central Social Welfare Board is being organised by the Tata Institute of Social Sciences, Bombay. Trends in social welfare, policies and programmes of Government, field counselling, inspection, are among the various topics on which lectures, film shows, discussions, panel etc. are being included. The Chairmen of T.N. State Board and Dr. B. Rudramurthy of Mafatlal are some of the eminent persons addressing the participants.

IX ASIAN GAMES

According to reports, 17 countries including the hosts, India, are to participate in the IX Asian Games scheduled to be held from November 19 to December 4, 1982.

India is likely to field the largest contingent of 493 followed by Japan with 470.

India, Japan and South Korea will participate in all the 22 events of the Asian Games.

Shooting has attracted the maximum number of participating countries with 15 and Athletics and Table Tennis, 14 each.

The countries that would be participating are Afghanistan, China, Hong Kong, India, Iran, Iraq, Japan, Kuwait, Laos, Mongolia, Saudi Arabia, Singapore, South Korea, Syria, United Arab Emirates, Vietnam and Yemen.

Afghanistan and Iraq have not yet indicated the number of participants. The other countries are expected to send over 3,500 participants in all.

Malaysia, Indonesia, Thailand, Nepal, Bangladesh and Sri Lanka are some of the other countries which are yet to intimate their participation.

News from Abroad

Commonwealth Fellowship 1983

The Council of St John's College, Cambridge, invites applications for a Commonwealth Fellowship for the year 1983-84. The Fellowship which is offered annually and is open to men and women, is intended to afford to a scholar who is a citizen of an overseas Commonwealth country or of the United Kingdom and on leave of absence from an overseas Commonwealth University, the opportunity to undertake study and research as a member of a Collegiate Society and to make contacts with scholars in Great Britain. It is intended for scholars holding academic posts, irrespective of seniority, and not for scholars still working for post-graduate degrees. Candidates who have held University posts including Visiting Fellowships, in the United Kingdom in the five years immediately preceding the academical year 1983-84 will not be considered.

Election to the Fellowship is made for one year. The Fellowship entitles the holder to a room in College free of rent if required, and to the other rights and privileges of a resident Fellow together with an honorarium at the rate of £1,250 a year. If the Fellow remains in the United Kingdom for less than the full year the honorarium is reduced proportionately. While it is expected that the greater part of the Fellow's time will be spent in Cambridge there are no specific rules of residence.

The College Council proposes to make the election in November 1982. The academical year at Cambridge begins on 1 October 1983 and the Commonwealth Fellow will be expected to enter upon the Fellowship as soon after that date as is convenient and not later than April 1984.

Applications for the Fellowship should be made to the Master, St John's College, Cambridge 3CB2 1TP, to reach him not later than 1 October 1982, and should be accompanied by the candidate's full name, the date and place of birth, present appointment, previous career, qualifications, plans and the approximate date at which it is proposed to come into residence, and by the names and addresses of not more than three persons acquainted with the candiadate, to whom the Council, if they wish, may refer.

Testimonials should not be sent.

Literacy rate in Sri Lanka

The 1981 Census of Sri Lanka reveals that literacy rates defined as the percentage aged ten years and over two can read and write at least one language have improved since 1971. It has risen from 78.5 per cent in 1971 to 86.5 per cent in 1981. The rate for females has jumped by 11.5 points to 82.4 per cent while that for males stands at 90.5 per cent, up by 4.9 points. The percentage of the population literate in English is 11.5 per cent.

The percentage of the population attending school shows a considerable increase over 1971 figures. (**Source**: *Sri Lanka Newsletter*.)

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. **Chitkara, Ashok Kumar.** Application of stochastic processes. Maharshi Dayanand University. Dr. Ashok Kumar, Lecturer, Department of Mathematics, Maharshi Dayanand University, Rohtak.

2. **Gururaj, Udpikar Shrinivas.** The possibility of resolving the singularity of a plane curve by means of suitable plane covering. Panjab University. Prof. S S. Abhyankar, Head, Department of Mathematics, Poona University, Poona.

Physics

1. **Agrawal, Shyam Sundar.** Studies in solid electrolytes. University of Saugar. Dr. M.S. Tomar.

2. **Awasthi, Manik Chandra.** Luminescence of rare earth activated alkaline earth sulphide/oxide phosphors. University of Saugar. Dr. J.L. Thakur.

3. **Dixit, Binda Sagar.** Studies in generation of thermo-stimulated and photo-stimulated currents in semi-insulators. University of Saugar. Dr. K.K. Saraf.

4. **Dubey, Lakhan Lal.** Thermo- and photo-electrets in thin and thick polymer films. University of Saugar. Dr. B L. Sharma.

5. **Naurala, R.C.** High injection and heavy doping effects in Bipolar devices. University of Delhi. Dr. S.C. Jain, Department of Physics, University of Delhi, Delhi. Prof. L.S. Kothari, Department of Physics and Astrophysics, University of Delhi, Delhi.

6. **Pare, Suresh Kumar.** Studies in doped thin polymeric films. University of Saugar. Prof. A.P. Srivastava.

7. **Patil, Raghunath Sitaram.** X-ray spectroscopic study of ferrites. University of Saugar. Dr. A.S. Vaingankar. Department of Physics, Shivaji University, Kolhapur.

8. **Pran Kishan.** Investigations of ferrimagnetic oxidic materials. University of Delhi. Dr. Prem Swarup, Department of Physics, University of Delhi, Delhi.

9. **Sharma, Ashutosh.** On the fluorescent state of some organic molecules. University of Delhi. Dr. M.K. Machwe, Department of Physics, University of Delhi, Delhi.

10. **Srivastava, Naresh Kumar.** Luminescence of alkaline earth silicates. University of Saugar. Dr. M. Khan.

11. **Tiwari, Girish Kumar.** Luminescence of ZnS and ZnS: CdS phosphors. University of Saugar. Dr. R.K. Pandey.

12. **Tomar, Ravinder Singh.** Electrical characteristics of metal insulator metal thin film systems. University of Saugar. Dr. B.L. Sharma.

13. **Verma, Surinder Dev.** Thermo-stimulated discharge studies of natural ores. University of Saugar. Prof. A.P. Srivastava.

Chemistry

1. **Agnihotri, Vinod Kumar.** Studies on indigenous plants products University of Saugar. Dr. S.K. Srivastava.

2. **Basnet, Rash Bahadur.** Natural products. University of Delhi. Prof. V.V.S. Murti, Department of Chemistry, University of Delhi, Delhi.

3. **Bhardwaj, Krishna Kant.** Cation exchange and absorption studies with molecular sieves. University of Saugar. Dr. S.P. Banerjee.

4. **Chaurasia, Om Prakash.** Chemical and antimicrobial studies of plant products and other organic compounds. University of Saugar. Dr. J.T. Rao.

5. **Das, Mukul.** Chemical studies on brain xenobiotic metabolism. Kanpur University. Dr. P.K. Seth, C-295, Nirala Nagar, Lucknow.

6. **Gidde, Prafullata Annasaheb.** Kinetics and mechanism of oxidation, photo-chemical oxidation and hydrolysis of some hydrazides. Shivaji University. Dr. A.Y. Nimbalkar, Department of Chemistry, Shivaji University, Kolhapur.

7. **Gupta, Rajendra Nath.** Thermo oxidative degradation of low and high density polyethelene: Evaluation of various phendic antioxidants as stabilizers. Kanpur University. Dr. G.N. Mathur, Head, Department of Plastic Technology, Harcourt Butler Technological Institute, Kanpur.

8. **Gyan Chandra.** Steroid-receptor proteins: Chemical and biochemical aspects in Cu-I-Iud. induced in uterine cytosel. Kanpur University. Dr. S.K. Roy, Division of Endocrinology, Central Drug Research Institute, Lucknow.

9. **Jain, Anjli.** Chemical investigation of some Indian medicinal plants. *University of Saugar. Dr. S K Srivastava.*

10. **Jauriyal, Shalini.** Structural studies on transition metal complexes with mono-and polydentate ligands. University of Saugar. Dr. Gopal Narayan

11. **Joshi, Suresh Govind.** Kinetics and mechanism of oxidation of some organic compounds. Shivaji University. Dr. J.B. Patil, Department of Chemistry, Shivaji University, Kolhapur.

12. **Kesarwani, Anil Kumar.** A study of structural and microbiological aspects of transition metal complexes. University of Saugar. Dr. O.P. Srivastava.

13. **Khare, Mamta.** Chemical analysis of indigenous medicines as used by tribes of Bundelkhand (M P.). University of Saugar. Dr. K.S. Pitre.

14. **Khare, Pratima.** Catalytic activity of tungstate and molybdate ions in the epoxidation of some unsaturated organic compounds by hydrogen peroxide. University of Saugar, Dr. G.L. Agrawal.

15. **Kul Bhushan.** Light induced reaction. Maharshi Dayanand University. Dr. K.S. Sharma, Reader, Department of Chemistry, Maharshi Dayanand University. Rohtak.

16. **Mitra, Sandhya.** Phytochemical investigation of some medicinal plants. University of Saugar. Dr. S.K. Srivastava.

17. **Nigam, Neelam.** Chemical studies on catecholamine metabolism in isoproterenol induced cardiac necrosis Kanpur University. Dr. N.K. Kapoor, Scientist, Central Drug Research Institute, Lucknow

18. **Pandey, Govind.** Pharmacological effects of some beta-adrenoceptor blocking agents on ischemic myocardial energetics and non-epinephsine release. Kanpur University. Dr. B.N. Dhawan, Dy. Director, Central Drug Research Institute, Lucknow.

19. **Ranjana Kumari.** Studies on biochemical and immunological response of rabbit fallopian tubes of local antigenetic stimulus. Kanpur University. Dr. V.P. Kamboge, Division of Endocrinology, Central Drug Research Institute, Lucknow.

20. **Singh, Mahendra Pratap.** Purification and chemical characterization of axenic Entamoeba histolytica Artigen for the study of immunity against amoebiasis. Kanpur University. Dr. M.K. Sahib, Scientist, Division of Bio Chemistry, Central Drug Research Institute, Lucknow.

21. **Singh, Pradeep Kumar.** Kinetic study of copolomerization of vinyl monomers with complexing agents. Kanpur University. Dr. G N. Mathur, Harcourt Butler Technological Institute, Kanpur.

22. **Singh, Ram Lakhan.** Biochemical toxicology of synthetic dyes and their metabolites. Kanpur University. Dr. S.K. Khanna, 40/8, Wazir Hoson Road, Lucknow.

23. **Soni, Chandra Kanta.** Some structural aspects of transition metal complexes and their biological applications. University of Saugar. Dr. O.P. Srivastava.

24. **Srivastava, Sushil Kumar.** Synthesis and characterization of interpenetrating polymeric networks. Kanpur University. Dr. G.N. Mathur. Harcourt Butler Technological Institute, Kanpur.

25. **Tandon, Rajesh Chandra.** Investigation of Indian medicinal plants particularly those relating to antifertility

activity. Kanpur University. Dr. N.M. Khanna, Head, Division of Pharmaceutics, Central Drug Research Institute; Lucknow.

26. Taike, Seema. Electroanalytical studies of some rare earths and their binary and ternary complexes. University of Saugar. Dr. K.S. Pitre.

Earth Sciences

1. Chadha. Atul Raj. Theoretical petrology and crystal chemistry of Silicates of Sikkim metamorphic rocks. University of Delhi. Prof. P.K. Verma, Department of Geology, University of Delhi, Delhi.

2. Khyani, Raj Kumar. Pedogeochemical, geobotanical and biogeochemical studies at Ambamata Deri Polymetallic cycle. University of Saugar. Dr. P K. Alexandar

3. Kohli, Devesh. Geology of the Rocks around Hirapur, with reference to its economic and engineering potential. University of Saugar. Dr. S.K. Babu.

4. Kshatri, Kishor Kumar. Sedimentology of the Vindhyan super group in the Panna Diamond Field. University of Saugar. Prof. S.M. Mathur.

5. Nambiar, Kanak R. Morphotectonic and earth resources study of the Son Valley Area (around Sidhi, M.P.) using remote control technique. University of Saugar. Dr. S.N. Pandey.

6. Poddar, Ashok Kumar. *Petro-mineralogical and* chemical parameters in relation to physical, engineering and industrial parameters of selected rocks from Eastern M.P. University of Saugar. Dr. S.K. Babu.

7. Rai, Dev Karan. Petro-mineralogy, geochemistry and engineering potential of granites from selected parts of Madhya Pradesh. University of Saugar. Dr. S.K. Babu.

8. Tiwari. Raghuvendra Prasad. Geological parameters in relation to engineering and physical parameters of rocks from selected areas of M.P. University of Saugar. Dr S.K. Babu.

9. Tiwari, Sharad. Morphotectonic and earth resources study of the Son Valley Area to the East of river Gopad (M.P.) using remote-sensing techniques. University of Saugar. Dr. S.N. Pandey.

10. Trivedi, Rajinder Kumar. Geology around Malanjkhand, Dist. Balaghat, M.P. *University of Saugar. Dr. S.K.* Babu.

Engineering & Technology

1. Gupta, Nand Kumar. Study of thermal behaviour of *biological systems. Kanpur University. Dr. Dayanand* Yadav. Department of Mechanical Engineering, Harcourt Butler Technological Institute, Kanpur.

2. Jain, Ravi Kant. Mechanics of abrasive cut-off operation. Kanpur University. Dr. G K. Lal. Prof., Department of Mechanical Engineering, Indian Institute of Technology, Kanpur. Dr. S J. Pandey, Harcourt Butler Technological Institute, Kanpur.

3. Pratap Singh. Design criterion for lubricated corrugated bearings. Kanpur University. Dr. S J. Pandey, Department of Mechanical Engineering, Harcourt Butler Technological Institute, Kanpur. Dr. V.K. Kapoor. D-17, Harcourt Butler Technological Institute, West Campus, Kanpur.

4. Sharma, Devendra Kumar. Effects of hybridisation with particulate reinforcement on the impact performance of short fibre *reinforced thermo-plastic resin matrix.* Kanpur University. Dr. S J. Pandey, Prof., Department of Mechanical Engineering, Harcourt Butler Technological Institute, Kanpur.

5. Singh. K.P. Analysis of burning process in a diesel engine and determination of optimized parameters. Kanpur University. Dr. D. Yadav, Asstt. Prof., Department of Mechanical Engineering, Harcourt Butler Technological Institute, Kanpur.

6. Upadhyaya, Harish Chandra. Dynamics of railway train-variable velocity. Kanpur University. Dr. Dayanand Yadav, Prof., Department of Mechanical Engineering, Harcourt Butler Technological Institute, Kanpur.

BIOLOGICAL SCIENCES

Botany

1. Ehtesham, Nasreen Zafar. Some aspects of biochemical genetics of lower eukaryotes. University of Delhi. Dr. C.R. Babu, Department of Botany, University of Delhi, Delhi.

2. Subramaniam, B. Population biological studies in Amaranthus hybridus L and its allies (Amaranthsceal). University of Delhi. Dr. C.R. Babu, Department of Botany, University of Delhi, Delhi.

Zoology

1. Dubey, Anil Kumar. Studies on the chemosterilant action of some new antimetabolites on the reproductive organs of insects. University of Saugar. Dr. V.K. Srivastava.

2. Guru, Jaiwanti. Effects of some drugs and chemicals on the chromosomes and division activity in mice. University of Saugar. Dr. H.K. Saksena.

3. Mitra, Amita. Chemosterilant action of antibiotic drugs on the reproductive biology of some insects pests. University of Saugar. Dr. V.K. Srivastava.

4. Pathak, Chander Kant. Studies on some aspects of hypothalamoneurohypophysial neurosecretory system in a fresh water teleost; Rasbora daniconius (Ham). University of Saugar. Dr. A K. Raizada. Prof. H.N. Bhargava.

5. Prabhat Kumar. Some aspects of the colour change mechanism in a fresh water teleost fish. University of Saugar. Prof. H.N. Bhargava.

6. Thakur, Manohar Singh. Studies on the saccus vasculosus of some fishes. University of Saugar. Dr. Y.N. *Sahai.*

Medical Sciences

1. Budhiraja, Ramji Dass. Phytochemical and pharmacological studies on fruits of Wittania coagulans Dunal. Maharshi Dayanand University. Dr. K N. Garg, Prof., Department of Pharmacology, Medical College, Rohtak. Dr. (Mrs.) Sharan Sudhir, Reader, Department of Pharmacology, Medical College, Rohtak.

2. Seth, Shashi. Effect of maternal vitamin D. supplementation during pregnance on the protein status of the new-*born rat. Maharshi Dayanand University. Dr. H. Lal*, Lecturer, Department of Bio-Chemistry, Medical College, Rohtak. Dr. A.S. Saini, Prof., Department of Biochemistry, Medical College, Rohtak.

Agriculture

1. Alok Kumar. Stress degree day as a criterion for scheduling irrigation in wheat. G.B. Pant University of Agriculture and Technology. Dr. R.P. Tripathi. Assoc. Prof., Department of Soil Science, College of Agriculture, G.B. Pant University of Agriculture and Technology, Pantnagar, Nainital.

2. Kumar, G.D. Integrated rural development planning at block level. G.B. Pant University of Agriculture and Technology. Prof. J S. Sharma, Head, Department of Agricultural Economics, G.B. Pant University of Agriculture and *Technology, Pantnagar, Nainital.*

3. Nautiyal, Shanti Swarup. Mycloflora of sweet sorghum, Sorghum bicolor (L.) Monech seeds in relation to seed health. Kanpur University. Dr. Kishan Singh, Director, Indian Institute of Sugarcane Research, Lucknow.

4. Nigam, R.K. Constraints in transfer of new *farm* technology in relation to operational research project on rice in Cuttack of Orissa. Kanpur University. Dr. S.L. Tripathi, 152, Alopi Bagh, Allahabad.

5. Pandey, G.N. Studies on ergot of pearl millet. G.B. Pant University of Agriculture and Technology. Dr. R K. Tripathi, Assoc, Prof., Department of Plant Pathology, G.B. Pant University of Agriculture and Technology Pantnagar, Nainital.

Veterinary Science

1. Rana, U.V.S. *Studies on pathogenesis of buffalo pax* virus in buffalo calves. G.B. Pant University of Agriculture and Technology. Dr. D.S. Misra, Head, Department of Micro and Public Health, College of Veterinary Sciences, G.B. Pant University of Agriculture and Technology. Pantnagar, Nainital.

2. Sharma, M.C. Studies on reticuloenthelian status, serum enzymes, blood gas, values and cinemotherapy of filariasis in cattle buffaloes and dogs. G.B. Pant University of Agriculture and Technology. Prof. S P. Pauchari, Head Department of Veterinary Medicine. College of Veterinary Sciences, G.B. Pant University of Agriculture and Technology, Pantnagar, Nainital.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIFNCES

Mathematics

1. Biswas, Supratim. An investigation into some problems in global program flow analysis for compiler optimization. I.I.T., Kharagpur.

2. Deshpande, Mukund Amrutrao. Perturbations and applications. Marathwada University.

3. Doomra, Gopal Krishan. Wave propagation in laterally and vertically heterogeneous media. Kurukshetra University.

4. Gupta, Rajendra Kumar. Hydromagnetic instability of thermallly and density stratified parallel flows. Meerut University.

5. Gupta, Sharda. A study of some Sheffer sets of polynomials via Rota's finite operator calculus. University of Delhi.

6. Hari Kishan. Instability of stratified parallel flows. Meerut University.

7. Iqbal Ahmad. A study of certain classes of univalent and Phivalent functions. University of Delhi.

8. Jain, Hukum Chand. Expandability and related properties. Meerut University.

9. Jain, Mamat Kumar. Stability of stratified shear flows. Meerut University.

10. Katkar, Laxman Nilu. On the application of Newman-Penrose formalism in relativistic electromagnetic fields. Shivaji University.

11. Mishra, Saroj Kumar. Some problems in dynamics of dusty fluids. I.I.T., Kharagpur.

12. Mukherjee, Sankar Prasad. Some problems on seismic waves in layers under initial stresses. I.S.M., Dhanbad.

13. Muttoo, Sunil Kumar. A study of bounds on codes dealing with random and burst errors. University of Delhi.

14. Nag, Sunil Kumar. Studies on some problems of dusty fluid flows. I.I.T., Kharagpur.

15. Nimse, Sarjearao Bhaurao. A study of some mappings, separation axioms and covering axioms in general topology. Meerut University.

16. Pal, Parbati. Some investigations on thermodynamic behaviour of strong electrolytes in solution. University of Calcutta.

17. Prabhakar Rao, P. Some axially symmetric Bransdicke fileds. I.I.T., Kharagpur.

18. Prasad, Braj Bihari. Some contributions to the theory of locally convex topological tensor products. Magadh University.

19. Roy, Sanjib Kumar. On the flow of liquids in thin films I.I.T., Kharagpur.

20. Satinder Pall. Some contributions to cyclotomy and their applications. Panjab University.

21. Singh, Rajkumar Tarachand. Some physical distributions of relativistic cosmology. I.I.T., Kharagpur.

22. Ved Prakash. Waves in layered viscoelastic media. Kurukshetra University.

23. Verma, Rakesh Kumar. Optimization in queues by resource allocation. Meerut University.

24. Veerappa, B. Stability of flow through porous media. Bangalore University.

Statistics

1. Dayal, Shambhu. Contribution to the sampling theory of surveys. University of Delhi.

2. Sarkar, Sanatkumar. Ineference from incomplete multivariate samples: Some testing and related problems. University of Calcutta.

Operations Research

1. Gupta, Johri Mal. Contributions to queues and optimization. University of Delhi.

Astronomy

1. Panchatsaram, T. A study of the orbital periods of twenty two eclipsing binaries. Osmania University.

Physics

1. Agarwal, Rajendra Kumar. Characteristics of carbon-mixes. Meerut University.

2. Arora, Sushil Kumar. Investigation of photoelectric absorption: Cross-sections for intermediate and high 'Z' elements. Punjabi University.

3. Asadullah, S. Md. Electron paramagnetic resonance and optical absorption studies on some copper (II) complexes of polyamine and heterocyclic ligands in polycrystalline and solution forms at room and low temperatures. Osmania University.

4. Asare, R.P. Electro-optical studies of rate earth activated liminephores. Ravishankar University.

5. Ashok Kumar. Calculation of few nonlinear optical effects. Meerut University.

6. Bal, Kiron Deep. Etching and annealing characteristics of solid state nuclear track detectors: Applications to geochronology of N-W Himalaya. Kurukshetra University.

7. Bandyopadhyay, Swapankumar. Photobiological studies of the vibrios. University of Calcutta.

8. Bhattacharyya, Balaram. Studies on rotational spectra observed from interstellar clouds and related topics. University of Calcutta.

9. Chaubey, Deo Raj. Phase transition studies in some inorganic and polymeric materials using high pressure differential thermal analysis. University of Delhi.

10. Das, Anupkumar. Studies on electron-ion excitation and electronatom ionization processes. University of Calcutta.

11. Das, Asok Kumar. Nucleon-nucleon interaction and some aspects of neutron-proton charge exchange reaction. University of Calcutta.

12. Datta, Pradkipkumar. Connected row set assignment of asynchronous sequential machines: A grapph theoretic technique. University of Calcutta.

13. Deo Raj. Scattering of atomic particles. Meerut University.

14. Garg, Om Prakash. Studies on atmospheric turbidity. Meerut University.

15. Ghosh, Amarnath. Electron microscopic studies on bacteriophage T2 DNA. University of Calcutta.

16. Girish Kumar, Uppulluri Venkata. Studies on low latitude lower ionosphere. Andhra University.

17. Gopalakrishna Rao, Tatavarhy Venkata. Some studies on PC_4 Pc_5 Pc_5 and Pl_2 pulsation characteristics at Nagaramapalem. Andhra University.

18. Jain, Ashok Kumar. Structure, morphology and other physical properties of solid state extruded polymers. University of Delhi.

19. Kulkarni, Vishwas Narharrao. Study of ion implanted aluminium by nuclear backscattering techniques, under high power laser treatment. Marathwada University.

20. Madhusudan Singh. A lattice dynamical study of some thermodynamic properties of crystalline solids. I.I.T., Kharagpur.

21. Padmanabha Rao, Ravilisetty. Studies on thermoluminescene, thermally stimulated conductivity, dielectric constant and related aspects of polycrystalline barium sulphide phosphors. I.I.T., Kharagpur.

22. Panda, Keshab Chandra. Studies in nuclear scattering. Sambalpur University.

23. Raibagkar, Liladhar Jinwarsa. Structural ferroelectric study of niobium containing perovskites. Marathwada University.

24. Ramani. Mossbauer effects studies of the thermal decomposition of ferrous oxalate and of homogenously

mixed ferrous-nickel oxalates in hydrogen. Bangalore University.

25. Ray, Anuradha. Symmetries of hadrons and their dynamics. University of Calcutta.

26. Sachdev, Virendra Kumar. Study of equation of state and related properties of some oligomers and polymers. University of Delhi.

27. Sahu, Rankanidhi. Study of low and high spin states in rare-earth nuclei. Berhampur University.

28. Salim Ahmad. Experimental investigation of Bremsstrahlung accompanying radiative interaction of beta particles with matter. Punjabi University.

29. Sarma, Prakhya Ramalingeswara. Studies on interaction of Gamma rays matter using HPGE spectrometer. Andhra University.

30. Sarkar, Ratanlal. Electronic properties of some ordered and disordered semiconductors. University of Calcutta.

31. Sawant, Shashikant Ramchandra. Studies of electrical and magnetic properties of $Cu_x\ Zn_{1-x}\ Fe_2\ O_4$ ferrites. Shivaji University.

32. Sham Lal. Determination of integral incoherent scattering cross-sections of photons from bound electrons. Punjabi University.

33. Sharma, Krishan Kumar. Studies on backscattering of beta particles from matter. Punjabi University.

34. Singh, Parakram Kumar. Study of losses in ferrites by Kerr-Effect at microwave frequencies. University of Delhi.

35. Singh, Sougaijam Priyokumar. Some basic and applied studies using energy dispersive X-rays fluorescence (EDXRF) technique. Kurukshetra University.

36. Somaiah, K. Study of defects in BaFci type crystals. Osmania University.

37. Sreedharan Nair, M.N. Studies on bag models and properties of hadrons. University of Cochin.

38. Vivekananda Rao, P. Photo-electric studies of the RS CVn type eclipsing binaries: TY pyxidis and UV piscium. Osmania University.

39. Yadav, Yashwant Singh. Isothermal crystallization from melt in some polymers using differential scanning calorimetry. University of Delhi.

Chemistry

1. Adalatwale, Gajanan Hari. Studies in inorganic ion-exchangers: Synthesis and physico-chemical studies of some new zirconium (IV) organo tungstates. Jiwaji University.

2. Anjaneyulu, Challapalli. Influence of incorporated anions on the kinetics of formation and nature of anodic films formed on titanium and zirconium. Osmania University.

3. Bhagavathi, R. Structural investigation and possible synthesis of natural products. Bangalore University.

4. Bhagwat, Urmila Ashok. Chemistry of metal complexes. University of Poona.

5. Chadha, Rita. Theoretical study of some reaction paths. University of Delhi.

6. Chawla, Neelam. Studies in the oxidation of some carboxylic acids and their esters by vanadium (V). Jiwaji University.

7. Dani, Nanda Pradeep. Reactions of olefinic compounds. University of Poona.

8. Das, Assis Kumar. Studies on the kinetics and mechanism of catalytic vapour-phase ammoxidation of 4-picoline in a fixed bed. I.I.T., Kharagpur.

9. Das, Birendra Nath. Pressure synthesis of terephthalic acid from potassium benzoate by disproportionation and potassium phthalate by isomerisation. I.I.T., Kharagpur.

[illegible]idal behaviour [illegible] of Calcutta.

[illegible] on metal com- [illegible]

[illegible] and uptake of secondary and micronutrients by plants under different levels of salinity and moisture conditions of the soil. Jiwaji University.

13. Dubey, Sachchida Nand. Thermodynamic properties of liquid mixtures of trichlorethylene with aromatics and halomethanes. University of Gorakhpur.

14. Gill, Charansingh Harnamsingh. Synthesis of potentially active compounds. Marathwada University.

15. Gupta, Ashok Kumar. Structural examinations of polyphenolic components of some medicinal plants. University of Delhi.

16. Gupta, Baldev Raj. Kinetics and mechanism of solid state reactions. University of Jammu.

17. Gupta, Bharat Bhushan. Studies in new anticoagulant and psychotropic agents related to cannabinoids. Meerut University.

18. Gupta, Pushpa. Kinetics and mechanism of oxidations of some x-hydroxy acid by thallium (iii). University of Rajasthan.

19. Gupta, Ram Prashad. Studies on the at pase of lung lamellar bodies. University of Delhi.

20. Gupta, Ranjana. Synthetic studies in coumarins, chromones and chromenes. University of Delhi.

21. Hemalatha, D. Synthesis, reactivity, spectral studies and physiological activity of isoxazole oximes and related derivatives. Osmania University.

22. Hemant Kumar. Coordination chemistry: Studies on the metal derivatives of organo-antimony compounds. Kurukshetra University.

23 Herjinder Kaur. Studies on structural and fungicidal aspects of transition metal complexes. Meerut University.

24. Hirve, Vasant Gopal. The investigations of solute solute solvent and metal ligand interactions in aqueous and partly aqueous media: Coordination chemistry. Marathwada University.

25. Jain, Dharmchand. Chemical investigation of Indian medicinal plants. University of Indore.

26. Jain, Praveen Kumar. A comparative study on physical properties of cobalt and calcium soaps in organic solvents. Meerut University.

27. Jain, Sudhir Kumar. Spectroscopic and magnetic investigations in the chelates of heavy metal ions. Meerut University

28. Jayaprasad Rao, P. Studies in the formation and pyrolysis of 1=(2-heteryl)-5-aryltetrazoles. Osmania University.

29. Jetley, Umesh Kumar. Study of the chemistry of transition metal complexes of 2-hydrox-3,5 dimethyl acetophenone and its oxime. Meerut University.

30. Joshi, Kalpna. Solution chemistry of Na, K, Ca and Mg: A biochemical application to explain the preferential uptake of K and Mg by the living cell. University of Indore.

31 Karadkhedkar, Laxmikant Gopalrao. Studies in stereochemistry of some compounds. Marathwada University.

32 Kasturi Lal. Synthesis of steroidal antifertility agents. Meerut University.

33. Kharosekar, Sadashiv Bhimrao. Membrane potential studies in the membranes of someselected animals. Marathwada University.

34. Kharwadkar, Ramesh Manikrao. Studies in coordination chemistry. Marathwada University.

35. Kulkarni, Aruna Panditrao. Synthesis reactivity and special characteristics of some fused s-triazolo systems. Marathwada University.

36. Langalia, N.A. Studies on drug potential. Saurashtra University.

37. Mahajan, Chavdas Tukaram. Radiolysis of P(I), P(III) and As (III) compounds and their binary mixtures with halates in aqueous system. University of Poona.

38. Malhotra, Sita Rani. Studies on analytical and coordination aspects of some transition metal complexes with 3 bromo-2-hydroxy-5-meti acetophenone, its oxime and hydrazone. Meerut University.

39. Mallik, Bholanath. Studies in the transition metal complexes of substituted hydrazines and their Schiff bases. University of Calcutta.

40. Mane, Ramrao Atmaram. Synthesis of organosulphur compounds. Marathwada University.

41. Manjunatha, N.H. Studies on proteinase inhibitors from finger millet, Eleusine coracana Gaertn. Bangalore University.

42. Mishra, Girish Chandra. Studies on vinyl polymerization and chemical modification of polymer. I.I.T., Kharagpur.

43. Mohan, Santosh Bala. Structural and synthetic investigations in the homo-biflavone group. University of Delhi.

44. Mukherjee, Sushmita. Spectrophotometric investigations on some transition and non-transition metal complexes of 2-(4-amino-3) (1,2,4-triazolylazo)-naphthol-4-sulphonic acid University of Delhi.

45. Mukhopadhyaya, Apurbakumar. Chemistry of naturally occurring compounds. Unive;sity of Calcutta.

46. Mukhopadhyay, Sagarika. Physico-chemical studies in solvents of high dielectric constant: Dissociation equilibria and related thermodynamic properties of some bases in formamide. I.I.T., Kharagpur.

47. Nagasundara, K.R. Cationic and related complexes of palladium and platinum with some II bonding ligands. Bangalore University.

48. Nalavade, Chandrakant Gyanaba. Gamma radiation decomposition and annealing of damage in some nitrates. University of Poona.

49. Padhi, Mahendra Charan. Thermodynamic behaviour of some electrolytes and electrode systems in mixed solvent media. Sambalpur University.

50. Pal, A.V. Chandra. Physico-chemical studies on some transition metal chelates of benzimidazoles. Osmania University.

51. Pal, Ravendra. Physico-chemical studies of Schiff base complexes of transition and rare earth metals. Meerut University.

52. Pandav, Bharat Vijay. Studies in photo-oxidation of amines: Phenoxamine and hydroxydiphenylamines. Punjabi University.

53. Pathak, Ranjana Vinayak. Synthesis in the unsymmetric analogs of disodium cromogylycate. Marathwada University.

54. Praharaj, Somanath. Synthesis and structure-activity studies on heterocyclic compounds. Utkal University.

55. Rama Chandra Murthy, R.S. Structure-antiasthmatic activity relationship of some benzopyrone derivatives and anti fertility studies on some Indian medicinal plant products. University of Delhi.

56. Raoot, Sarala. Studies on reductions of metal ions with ascorbic acid, hydrazine sulphate and other allied compounds in alkaline medium. Ravishankar University.

57. Rastogi, Arvind Kumar. Kinetics and mechanism of oxidation of some glycols by t-BuOCl. Meerut University.

58. Samaddar, Ashis Kumar. Synthesis of some polycyclic systems related to natural products. I.I.T., Kharagpur.

59. Saxena, Vijay Kumar. Chemical study of some Indian medicinal plants. University of Saugar.

60. Semlot, Rupendra. Analytical and kinetics studies of electron transfer reactions in solution: Oxidations by acid permanganate. University of Rajasthan.

61. Shah, V.H. Studies on heterocyclic compounds. Bhavnagar University.

62. Sharma, Sunita. Spectra and electronic structure of some metal complexes of hydrazine and its derivatives. Meerut University.

63. Sharma, Suresh Chandra. Studies in some biologically active heterocyclic compounds and their metal complexes. Meerut University.

64. Sharma, Suresh Chandra. Studies on reclamation of saline alkali soils in the Chambal command area of H.P. Jiwaji University.

65. Singh, Brij Pal. Studies on synthesis and kinetics of degradation of polyphenylene oxides. Kurukshetra University.

66. Singh, Subodh. Physico-chemical studies on polyphenylene oxides. Kurukshetra University.

67. Singhal, Om Prakash. Physico-chemical studies on coordination complexes of some potential tridentate ligands. Kurukshetra University.

68. Sneh Lata. Coordination chemistry: Metal chloride complexes of organophosphorus compounds. Kurukshetra University.

69. Srivastava, Gopal Ji. Studies on phosphorus containing polymers and their influence on the degradation of polystyrene. University of Gorakhpur.

70. Taj Mohammad. Studies in synthesis of 7-oxygenated aporphines and related alkaloids. Panjab University.

71. Tambi, Satya Bhama. Synthesis of some new heterocyclic compounds possibly of psychopharmacological interest. University of Rajasthan.

72. Tewari, Gyanendra Mohan. Chemistry of some flauour compounds of onion, Allium cepa L. Meerut University.

73. Thakkar, Veena. Studies on anion-exchange selectivities in ethanol water media. Jiwaji University.

74. Thakur, Shivakar. Nature of positive halogenating species in acid solutions. Jiwaji University.

75. Vasundhra Kumari. Coordination, analytical and biochemical investigations in some mixed ligand complexes of transitional cations. Meerut University.

76. Verma, Mangal Deen. Correlation of soil tests for sulphur with crop responses on alluvial soils of Madhya Pradesh. Jiwaji University.

77. Vinita Rani. Physico-chemical investigations of transition metal complexes. Meerut University

78. Vohora, Shashi Bharat. Research on medicinal plants in India: Effort and achievements 1947-76. Jawaharlal Nehru University.

Earth Sciences

1. Bhaskar Rao, Y.J. Geology and geochemistry of metavolcanics and associated rock types from Bababudan belt and the late archaean crustal evolution in Karnataka craton. Osmania University.

2. Datta, Indira. Study of aeromagnetic and radiometric data of Samalpatti Region, Salem District, Tamil Nadu. I.I.T., Kharagpur.

3. De, Reena. Diagenesis and thermoluminescence characteristics of the deep sea carbonate oozes from the Indian ocean. I.I.T., Kharagpur.

4. Dilli, Kailas. Diagenesis of clay minerals in parts of the Indian ocean. I.I.T., Kharagpur.

5. Gangadhar, V. Studies on barite and associated rocks of Vemula Area, Pulivendula Taluk, Cuddapah District, A.P. Osmania University.

6. Hatim, A. Geomorphology and quaternary geology of parts of Midnapore District, West Bengal, India. I.I.T., Kharagpur.

7. Kaledhar, Rupiti. Recent forminiferida from Balacheruvu streams, Tandava river estuary and Rishikonda rock pools. Andhra University.

8. Manickavasagam, Rm. Phase equilibria and chemical petrology of the metamorphosed non-calcareous manganiferous sediments in parts of Madhya Pradesh, Maharashtra and Gujarat. India. I.I.T., Kharagpur.

9. Mukherjee, Bidyut Kumar. Bauxite deposits of Shevaryo Hills and in parts of Kolli Hills, Salem District, Tamil Nadu. I.I.T., Kharagpur.

10. Mukherjee, Shubhra. Thermoluminescence studies on natural fluorites from Amba Dunger, Gujarat, India. I.I.T., Kharagpur.

11. Raghupathi Reddy, M. Hydrogeological studies of Nagarjunasagar Project area in Miryalguda Taluk, Nalgonda District, A.P. Osmania University.

12. Sinha, Ashok Kumar. Ore geological and geochemical studies on sulphide mineralisation at Ambamata, Banaskantha District. I.S.M., Dhanbad.

13. Yogeswararao, Arja. Influence of solar radiation and temperature on yield components of certain popular low land rice varieties of Coastal Andhra. Andhra University.

Engineering & Technology

1. Arjan Singh. Flow through pump impellers. Panjab University.

2. Barari, Hari Bhusan. Some studies in the classification of solids in single and multicompartment fluidized beds. I.I.T, Kharagpur.

3. Chandiramani, Dipak.. Some studies on underwater Co_2 welding. I.I.T., Kharagpur.

4. Harbhajan Singh. Analysis of scheduling models in manufacturing systems and optimization problems in scheduling. Kurukshetra University.

5. Majumdar, Bishnu Pada. Diakoptics and its applications to load flow analysis and steady state security assessment. I.I.T., Kharagpur.

6. Malla Reddy, V. Studies in esterification of n-propanol. Osmania University.

7. Misra, Ratikanta. Prediction of load and metal flow in axisymmetric extrusion forging. I.I.T., Kharagpur.

8. Palanisamy, K.R. Analysis, optimization and identification of lumped continuous systems with time delays via Walsh functions. I.I.T., Kharagpur.

9. Patel, Navnitbhai Manubhai. Load-settlement behaviour of reinforced medium dense sands under strip and circular model footings. University of Delhi.

10. Rajan, S.T. Electrohydrodynamic mass transfer of electrolytes in Poiseuille passages. I.I.T., Kharagpur.

11. Ray, Sankari Prasad. Behaviour and ultimate shear strength of reinforced concrete deep beams with and without opening in web. I.I.T., Kharagpur.

12. Saha, *Dines Chandra. Identification of linear continuous* systems by Poisson moment functional (PMF) approach. I.I.T., Kharagpur.

13. Samaddarchaudhuri, Amarendrakumar. System analysis of tea industry: Identification modelling and prediction. University of Calcutta.

14. Sharma, Madan Gopal. Studies on the element position modulated phased array. I.I.T., Kharagpur.

BIOLOGICAL SCIENCES

Anthropology

1. Devinder Kumar A study of age changes in physique and body composition in males of two communities of Punjab. Punjabi University .

2. Chhabra, Neelam. Study of genetic markers (ABO, MN Rh, H, ABH secretion, P.T.C.) and human infertility. University of Delhi.

Botany

1. Amar Singh. Studies on species adaptability and relationship in the genus Medicago L and the evolution of better plants for forage and seed production. Jiwaji University.

2. Ashwani Kumar. Effect of growth regulators on growth pattern, productivity, mineral cycling and energy budget of groundnut, Arachis hypogeae L. Meerut University.

3. Behere, Radhika Rajendra. Studies on the fresh-water *algae of Maharashtra. University of Poona.*

4. Bell, D. Cross. Studies on the production potential of a few plants growing in high air pollution zone in Baroda. M.S. University of Baroda.

5. Bhalke, Sahebrao Pandurangrao. Air spora over some fields. Marathwada University.

6. Chauhan, Vidya. Studies on population dynamics and ecological relationships of three closely related biotypes of vila growing around Simla Hills. Himachal Pradesh University.

7. Deka, Hiranya Kumar. Studies on soil microbial of Jhum fallows of different ages. North Eastern Hill University.

8. Dhingra, Ranjna. Studies on post harvest diseases of some fruits and vegetables in Haryana. Kurukshetra University.

9. Dubey, Rajender Prasad. Forest flora of Orchha Range. Jiwaji University.

10. Geetha, K.R. Paleobotanical studies of Lower Gondwana strata and palynostratigraphy of certain coal seams. Bangalore University.

11. Ghosh, Sunanda. Studies on pollen-pistil interaction in Linum and Zephyranthes. University of Delhi.

12. Gupta, Veena. Anatomical and morphological studies of fruits and seeds of some economically important angiosperms. Kurukshetra University.

13. Joshi, Kalyan Govindrao. Physiological studies on some weeds of Marathwada I. Marathwada University.

14. Kaushal, Shri Kant. Studies on the physiological and biochemical effects of low temperature treatment on the seeds of certain legumes. Meerut University.

15. Kavita Rani. Morphogenetical and physiological studies on Bartramidula bartramiodes Schimp and Hyophila involuta (Hook) Jaeg. University of Delhi.

16. Kumra, Praveen Kumar. Morphogenetic and physiological studies on some mosses. University of Delhi.

17. Kushal Singh. Effect of light and some regulatory substances on morphophysiological and biochemical changes during growth and development of some trees. Panjab University.

18. Madhusudhan Reddy, Ch. Studies on mutagenesis in Dolichos biflorus L (Horsegram). Osmania University.

19. Majumdar, Tripti. Studies on a galactose binding lectin from Momordica charantia. University of Calcutta.

20. Mishra, Sheo Sunder. Phytotoxic and residual effects of some pesticides on Zea mays. University of Gorakhpur.

21. Mohanty, Rama Chandra. Water quality studies of some water bodies of Bhubaneswar. Utkal University.

22. Narayana Rao, Iyyalasomayazula. Cytological and biochemical markers for wheat and rye chromosomes. Andhra University.

23. Pingle, Subhash Dattatraya. Studies on the algae of impoundments and streams in Maharashtra. University of Poona.

24. Pratibha Devi, B. Mutational studies in a filamentous alga, Spirogyra verrucosa (Rao) Kolkwitz and Krieger. Osmania University.

25. *Sarode, Purushottam Tikaram. Studies on the fresh*-water diatoms of Maharashtra State. Marathwada University.

26. Shaikh, Sal [illegible]
and physiology o [illegible]
from State of M [illegible]

27. Shinde, Laxman Shripati. Physiological studies in mangroves. Shivaji University.

28. Subba Rao, Budidi. Genetic and biochemical studies on induced 'mutants of pearl millet, Pennisetum Americanum(L) Leeke. Andhra University.

29. Sunanda Rao. Growth and morphogenesis in limnophila. University of Delhi.

30. Surendra Kumar. Bio-systematic studies in the genus Digitaria rich (Gramineae). Meerut University.

31. Thakur, M.K. *Studies on the mycoflora associated with* wheat grains in storage and their deterioration. Universty of Jabalpur.

32. Tripathi, Anjni Kumar. Studies on the hospathogen relationship of chillies, Capsicum annum Linn with special reference to fungal pathogens. Jiwaji University.

33. Ved Parkash. Studies on adaptation of some grasses to alkali soils. Kurukshetra University.

34. Venu, Potha Raju. A limnological study of lake Kondakarla. Andhra University.

35. Vishnoi, Ashok Kumar. Induced mutagenesis and cytogenetic studies in Vigna Savi and Vicia Linn. Meerut University.

Zoology

1. Agarwal, Nita. Lipid transport in certain insects with special reference to Trogoderma granarium Everts. University of Delhi.

2. Bandyopadhyay, Ramsyamal. Structural and functional analysis of a genetic site defired as white locus in Drosophila melanogater. University of Calcutta.

3. Bhagat, Rakesh Mohan. Radioprotective effect of MPG (2-mercaptopropionylgycine) against radiation induced changes in the haematology and bone marrow of Swiss albino mice after radiocalcium (45Ca) internal irradiation. Himachal Pradesh University.

4. Bhaskaran, D. Certain biochemical and physiological aspects of aging: Monoamines and rhythms. Bangalore University.

5. Bhateja, Baldev Raj. Taxonomic studies on some Indian apionidae (Curculionidea : Coleoptera). Panjab University.

6. Chandak, Ramesh Mohanlal. Studies on the frontal gland of the bat. Shivaji University.

7. Chatterjee, Vijay Chandra. Studies on the biology, bionomics and external morphology of Nesidiocoris caeser Ballard (Hemiptera Hetetoptera-Miridae), a pest of tobacco and bottle gourd. Meerut University.

8. Chindurwar, Ashok Balayya. Biology of a cyprinid fish, Chela phulo (Ham.). Marathwada University.

9. Dembla, Manju. The role of hormones in the initiation of spermatogenesis in the mouse. University of Rajasthan.

10. Dhoot, Badrinarayan Balmukundji. Studies on nematode parasites of vertebrates. Marathwada University.

11. Farooqui, Uvais Mohammed Mohammed Omer. Reproductive physiology of marine crab, Scylla serrata. Marathwada University.

12. Gaikwad, Jagannath Nagu. Studies on mucosubstances of vertebrate tongues. Shivaji University.

13. Garg, Veena. Histopathological and biochemical investigations on a few tissues (liver, kidney and blood) of Channa punctatus under toxication with Bismark brown azodye. Meerut University.

14. Gupta, Mridula. Bionomics and control of Pyrilla perpusilla Walker. Meerut University.

15. Kaushal Kumar. Studies on the morphology, anatomy life history and toxicology of Indian dog tick Rhipicephalus sanguineus (Latreille) (Iodoidea : Ixedidae). Meerut University.

16. Laxminarayana, D. Cytological action of some chemotherapeutic agents on somatic and meiotic cells of mice. Osmania University.

17. Mahapatra, Narayan. Studies on skin collagen of the common Indian toad. Berhampur University.

18. Manikyaja Rao, Dhujipala. Studies on the biology and

biometry of the threadfin break Nemipterus japonicus Bloch with observations on the nemipterid fishery off Visakhapatnam (Bay of Bengal). Andhra University.

19. Mitra, Krantikumari Bhasker. Biology of cestode parasites of edible birds. Marathwada University.

20. Mohana Rao, Ghanagam Rama. Studies on the biology and culture of cat fishes of Pulicat Lake India with special reference to Mystus gullio (Hamilton). Andhra Pradesh.

21. Rajvanshi, Surendra Kumar. Studies on the external and internal female reporductive organs, fecundity and oviposition of certain heteroptera. Meerut University.

22. Rashatwar, Subhash Shamrao. The effects of pesticides of fishes of Maharashtra State. Marathwada University.

23. Rita, P. Mutagenic evaluation of anti-inflammatory, sedative-hypnotic and anthelmintic drugs in mice. Osmania University.

24. Sangal, Ashok Kumar. Histochemical analysis of the endocrine glands of a fresh water crustacean, Paratelphusa legubris with special reference to seasonal variation. Meerut University.

25. Saroj Rani. Toxicity of phenol pentachlorophenol and dinitrophenol separately and jointly to a fish, Notopterus notopterus. Meerut University.

26. Sarwade, Dnyandeo Vitthalrao. Biology of the cestodes parasities of fishes and birds. Marathwada University.

27. Saxena, Sumitra. Studies on the polytene chromosomes and chromosomal polymorphism of five Indian chironomid species. University of Delhi.

28. Sen, Kinsuk. Role of catecholamins in the physiology of Anabas testudineus (Bloch). University of Calcutta.

29. Sharma, Kamana. Effect of mercury and diazinon on blood and brain of a fresh water teleost, Channa punctatus (Ham). Meerut University.

30. Shivagnana Murthy, P. Studies on the reproductive physiology of certain fresh water fishes of Karnataka with particular reference to histophysiology of pituitary and gonad and their relationships. Bangalore University.

31. Singh, Raj Vir. Study of the morphohistology, histochemistry and physiology of the digestive system of the largest Indian bat, Pteropus giganteus. Meerut University.

32. Tandon, Vijay Laxmi. Role of anterior pituitary hormones in the reproductive physiology of mice, Mus muschlus : An immunocytochemical study. University of Rajasthan.

33. Usha Rani, Koganti. Haematology of Mugil cephalus linnaeus Liza macrolepis (Smith) Velamugil cunnesius (Valaenciennes) and Nematolosa nasus (Bloch) from Visakhapatnam harbour. Andhra Univesity.

34. Usha Rani, M.V. Cytogenetic and genetic effects of insecticides in mice. Osmania University.

35. Vaish, Santosh Dalip. Antifertility studies on the female reproductive organs of albino rats. Jiwaji University.

36. Virdy, Karam Jeet Kaur. Chromosome studies on some caraboid beetles (Adephaga : Coleoptera). Kurukshetra University.

37. Yadav, Ratan Singh. Cytological study on the gemetogenesis of certain digenetic trematodes. Meerut University.

Medical Sciences

1. Baja [illegible]
activity [illegible]
compou [illegible]

2. Bandopadhyay, Pratulkumar. Experimental studies on aerobic capacity of Bengali students of growing age. University of Calcutta.

3. Bhargava, Surender Kumar. Antifertility studies of certain ayurvedic drugs possessing contraception like properties. University of Rajasthan.

4. Chakraborti, Manoj Kumar. Adenosine-3′ 5′ cyclic monophosphate in vibriocholerae. Unive;sity of Calcutta.

5. Jyothy, A. A. study on amino acid disorders in mentally retarded children. Osmania University.

6. Kaliyugaperumal, V. Immunological studies of tuberculosis. University of Delhi.

7. Raghuram, T.C. Effect of malnutrition on drug metabolism. Osmania University.

8. Ranga Raju, Namburi. Studies on the novel flavonoids and other chemical components of the roots of Tephrosa purpurea Pers. Andhra University.

9. Vedasiromoni, J. Rajan. Studies with oxotremorine and anti-Parkinson drugs on skeletal neuromuscular transmission. University of Calcutta.

Agriculture

1. Acharya, Suresh Kumar. Genetic analysis of cold tolerance and estimation of stability parameters in elite cold tolerant types of rice, Oryza sativa L. in Himachal Pradesh. Himachal Pradesh Krishi Vishwavidyalaya.

2. Atul Chandra. Studies on rooting pattern of citrus Cvs. Kinnow and Pearl. Haryana Agricultural University.

3. Bhanot, Joginder Paul. Effect of crop management practices on termite damage in barley crop and population dynamics of termites. Haryana Agricultural University.

4. Bhat, B. Narayana. Genetic analysis and character association of fruit yield and its components in chilli, Capsicum annuum L. University of Agricultural Sciences, Bangalore.

5. Chakraborti, Sudhischandra. Selection and breeding of pumpkin, including exploitation of hybrid vigour. University of Calcutta.

6. Datta, Neeraj. Studies on the regulation of nitrate assimilating enzymes by ammonium in wheat, triticum aestivum. Jawaharlal Nehru University.

7. Gulshan Singh. Phosphorus nutrition of maize and wheat as influenced by different soil and plant parameters. Punjab Agricultural University.

8. Gupta, Padam Parkash. Efficacy of stable bleaching powder, Shriram klorocin, in the control of bacterial plant pathogens. Haryana Agricultural University.

9. Jhorar, Bhim Sain. Genetic and stability analysis of metric traits in guar (Cyamopsis tetragonoloba (L) Taub. Haryana Agriculture University.

10. Joti Ram. Studies on the genetic effects of single and combined treatments of gamma radiation with ethyl methansulphonata (EMS) and sodium azide (Na N3) in barley, Hordeum vulgare L. Himachal Pradesh Krishi Vishwavidyalaya

11. Karunakaran, P. Etiology and control of the diseases of the major tree species of Kerala. Kerala Agricultural, University.

12. Khan, Anisur Rahman. Studies on physical edaphic properties of soil under different tillage and water management practices in relation to groundnut crop. I.I.T., Kharagpur.

13. Kharub, Sube Singh. Insect species associated with stored Bengal gram, Cicer arietinum L and losses caused by Callosobruchus chinessis L. in rural areas of Haryana. Haryana Agricultural University.

14. Kotwal, Dev Raj. Studies on the population dynamics of cabbage aphid, Brevicoryne brassicae (L.) on cauli-flower seed crop. Himachal Pradesh Krishi Vishwavidyalaya.

15. Misra, Arun Kumar. Water use and yield of wheat as influenced by pan evaporation based irrigation scheduling. I.I.T. Kharagpur.

16. Panwar, Rajendra Singh. Induced transfer of resistance to jassid and blackgram from Gossypium hirsutum to Gossypium barbadense. Meerut University.

17. Patil, Shivanangouda Jayanagouda. Studies on the relative stability of maize, Zea mays L, inbred lines. University of Agricultural Sciences, Bangalore.

18. Patnaik, Nrusinha Charan. Studies on the insect parasites of the rice gall midge, Orseolia oryzae (WM) and the yellow borer, Tryporyze incertules (Walkar) with special reference to their bioecology. Orissa University of Agriculture and Technology.

19. Rajaram, Jagtap Dinkar. Genetic studies of certain yield and quality components of upland cotton, Gossypium hirsutum L.: (I) A diallel cross analysis, and (II) Linextester analysis. Mahatma Phule Agricultural University.

20. Raj Kumar. Bionomics and control of ber fruit fly, Carpomyia vesuviana Costa. Haryana Agricultural University.

21. Saharan, Mukh Ram. Physiological and biochemical basis of grain yield in wheat. Haryana Agricultural University.

22. Sain Dass. Studies on gene effects for incidence of downy mildew disease and for some quantitative characters in pearl millet. Haryana Agricultural University.

23. Sajwan, Kundan Singh. Influence of field environment and post-harvest operations on milling outturn and quality of rice. I.I.T., Kharagpur.

24. Singh, Ramesh Pal. Studies on genetic architecture and stability of grain yield and its components in forage sorghum. Haryana Agricultural University.

25. Tiwary, Shankar. Energy studies on paddy parboiling systems. I.I.T., Kharagpur.

26. Vyahalkar, Gopal Rajaram. Diallel analysis to study

Library

heterosis combining ability and nature of gene action and study of genotype X environment interaction in desi cotton, G. arboreum L. Marathwada Agricultural University.

27. Zaghloul, Osman Ahmad. Bioecology of Earias vittella (Fabricius) and assessment of losses in cotton due to bollworms. University of Agricultural Sciences, Bangalore.

28. Zope, J.S. Mutagenic effects of single and combined treatments of X-rays and ethyl methane sulphonate on black gram. I.I.T., Kharagpur.

Veterinary Science

1. Dixit, Narendra Kumar. The levels of serum sex steroids as related to the reproductive performance in buffalo bulls. Haryana Agricultural University.

2. Georgie, George C. Comparative circulating sex steroid levels in cross-bred cattle and buffalo pubertal cycling heifers. Haryana Agricultural University.

3. Handique, Niranjan. An economic analysis of milk production and optimum combination of dairy and crop enterprises in the tribal areas of North Eastern India. Kurukshetra University.

4. Rajeshwar Rao, T. Studies on biliverdin associated proteins in ruminant milk. Kurukshetra University.

5. Ram Chand. Measurement of aspirations of dairy farmers of Intensive Cattle Development Project, Karnal with projective and non-projective technique. Kurukshetra University.

6. Sharma, Rajendar Kanwar. A study of socio-psychological and infrastructural constraints in the efficient execution of Intensive Cattle Development Project. Kurukshetra University.

7. Varadaraj, M.C. Studies on the role of staphylococci as a potential producer of enterotoxins in Khoa. Kurukshetra University.

8. Vijayakumar, D.S. Studies on experimental osteosynthesis for tibial fractures in calves. Haryana Agricultural University.

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Holmberg, Borje. *Status and trends of distance education: A survey and bibliography.* London, Kogan Page, 1981. 200p.

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Nagpal, Rup. *Academic promise and fulfilment: A study of non-intellectual characteristics of over-and under-achieving engineering students.* Delhi, New Society Publications, 1981. 139. p.

Nagy, Jozsef. *Hungarian experience of OOK: An instrument for the development of educational technology.* Paris, Unesco, 1980. 101p.

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Neil, Michael W., ed. Education of adults at a distance: *A report of the Open University's Tenth anniversary international conference.* London, Kogan Page, 1981. 270p.

Newitt. Jane, ed. *Future trends in education policy.* Lexington, Lexington, Books, 1979. xiii, 142p.

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Premaratne, B. *Examination reforms in Sri Lanka.* Paris, Unesco, 1976. 49p.

Psacharopoulos, George. *Education and work: An evaluation and inventory of current research.* Paris, Unesco, IIEP, 1977. 147p.

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Saraf, S.N. *Education in the 1980s: World bank perspectives —The myth and the reality.* Paris, Unesco, IIEP, 1980. 41p.

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Sharma, O.P. *Education for national progress.* Meerut, Anu, n.d. 1o2p.

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————*Youth institutions and services: Present state and development.* Paris, author (c 1977) 51p.

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Villeneuve, Paquerette. *Education for handicapped children?* Paris, Unesco, 1970. 80p.

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CLASSIFIED ADVERTISEMENTS

BANARAS HINDU UNIVERSITY

Advertisement No. 1/1982-83

APPLICATIONS are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowance, ~~Hose~~ Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of University Employees is 60 years. The appointment will be made on two years probation on all permanent posts. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Orders of **Rs. 7.50** in favour of the Registrar, Banaras Hindu University towards the application fee. Application forms alongwith the leaflet of information will be supplied free of cost by the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005 on receipt of of **Re. 0.60** paise stamped self-addressed envelope of 23 cm x 10 cm size. Candidates called for interview for these posts will be paid actual Railway fare by the Second Class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence bothways by the shortest route as per University rules. No other expenses will be paid.

Applications for each post be sent separately alongwith attested copies of certificates in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005.

Incomplete application in any respect will not be entertained for consideration.

Those who are in service should apply through proper channel. M.O. or Cheque will not be accepted towards the application fee.

For the posts of Lecturers, other things being equal preference will be given to Scheduled Caste/Scheduled Tribes candidates who are considered fit.

Applicants may send their bio-data alongwith attested copies of all the certificates and details on plain paper alongwith the application fee of **Rs. 7.50** in Bank Draft/I.P.O. to avoid delay in case they do not get the prescribed forms in time.

Note: Number of vacancies are tentative and can vary according to needs.

LAST DATE FOR RECEIPT OF APPLICATION IS MAY 25, 1982.

1. **Professor of Radiotherapy & Radiation Medicine** (One) (Instt. of Medical Sciences).

Grade: Rs. 1500-60-1800-100-2000/12[illegible]-2-2500 plus N.P.A. as per rules.

Qualifications

Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India and must be registered under the State/Central Medical Registration Act. (2) Post-Graduate qualification in Radiotherapy such a[illegible] logy [illegible] therap[illegible] Radiotherapy U.S.A. or equivalent qualification recognised by the Medical Council of India. (3) Five years teaching experience as Reader or equivalent post in Radiotherapy/Radiation Medicine in a Medical College.

Desirable

(1) Postgraduate Degree/Diploma in Radiation Medicine/Nuclear Medicine. (2) Research experience and publication in the subject.

2. **Reader in Radiotherapy (Nuclear Medicine)** (One) (Instt. of Medical Sciences).

Grade: Rs 1200-50-1300-60-1900-plus N.P.A. as per rules.

Qualifications

Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India and must be registered under the State/Central Medical Registration Act. (2) M.D. (Nuclear Medicine/Radiotherapy) or M.D./M.R.C.P. in Medicine with D.R.M. or 2 years special training in Nuclear Medicine. (3) Three years teaching experience as Lecturer or equivalent post in Radiotherapy/Nuclear Medicine.

Desirable

(1) Research experience and publication in the subject.

3. **Lecturer in Microbiology** (One) (Instt. of Medical Sciences).

Grade: Rs. 700-40-1100-50-1600-plus N.P.A. as per rules admissible to Medical Graduates only.

Qualifications

Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.D./M.Sc/Ph.D. in Microbiology. (3) Three years experience of teaching as Senior Resident/Demonstrator in Microbiology in a Medical College of which one year should be after Post-Graduate qualification.

Desirable

(1) Research experience in Medical Microbiology with published work.

4. **Lecturer in Radiology** (One) (Instt. of Medical Sciences).

Grade: Rs. 700-40-1100-50-1600-plus N.P.A. as per rules.

Qualifications

Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.D./M.S. (Radiology) Speciality Board of Radio-diagnosis (USA) M.D. (Radio-diagnosis. (3) Three years teaching experience as Tutor/Registrar/Resident in the subject of which one year should be after Post-graduate qualification.

Desirable

(1) Research publications.

Note: Those who have applied earlier in response to our Advt. No. 31/1980-81 need not apply again.

5. **Lecturer in Paediatrics** (One) (Under Post Partum Programme).

Grade: Rs. 700-40-1100-50-1600 plus N.P.A. as per rules.

Qualifications

Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.D. (Paediatrics)/Speciality Board of Paediatrics (U.S.A.) (3) Three years teaching experience as Tutor/Registrar/Resident or an equivalent post in Paediatrics of any Medical College of which one year should be after Post-Graduate qualification.

Desirable

(1) Research experience.

6. **Lecturer in Biochemistry** (temporary likely to be made permanent) (One) (Instt. of Medical Sciences).

Grade: Rs. 700-40-1100-50-1600-plus N.P.A. as per rules admissible to Medical Graduates only.

Qualifications

Essential

(1) M.D. Biochemistry)/M.Sc. (Medical Biochemistry)/Ph.D. (Biochemistry)/D.Sc. (Biochemistry). (2) Three years teaching experience as Resident or an equivalent post in Biochemistry of which one year should be after Post-Graduate qualification.

Desirable

(1) Research experience with publications.

7. **Physsiatrist** (One) (Dept. of Orthopaedics) (Instt. of Medical Sciences).

Grade: Rs. 700-40-900-EB-40-1100-50-1300-plus N.P.A. as per rules).

Qualifications

Essential

(1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.S. (Ortho.) or equivalent qualification. (3) About 4 years professional experience after graduation.

Desirable

(1) Experience of having worked in the Orthopaedic Rehabilitation of a teaching Institute. (2) Standard publication in the speciality.

Note: Those who have already applied in response to our Advertisement No. 8/1979-80 need not apply again.

8. **Professor of Kannada:** (One) (Faculty of Arts).
Grade: Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications
Essential

An eminent scholar with published work of high quality, actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at Doctoral level.

Or

An outstanding scholar with established reputation who has made significant contribution to knowledge.

9. **Reader in Telugu** (One) (Faculty of Arts).
10. **Reader in Tamil** (One) (Faculty of Arts).
11. **Reader in Sankyayoga** (One) (Faculty of Oriental Learning and Theology).
12. **Reader in Political Science** (One) (Mahila Mahavidyalaya).
Grade: Rs. 1200-50-1300-60-1900.

Qualifications
Essential

Good academic record with a Doctorate Degree or equivalent published work.

Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of teaching materials.

About 5 years experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Note: Other things being equal preference will be given to women candidates (applicable for the post of Reader in Political Science—Mahila Mahavidyalaya only).

13. **Lecturer in Dance** (One) (Mahila Mahavidyalaya).
Grade: Rs. 700-40-1100-50-1600.

Qualifications
Essential

(1) Consistently good academic record with first or high second class (B in the 7 point scale) Master's Degree in the relevant subject or an equivalent degree or diploma recognised by the University; and

(2) Two years research or professional experience or evidence of creative work and achievement in his field of specialisation or a combined research and professional experience of three years in the field as an artist of outstanding talent.

Or

A traditoinal or a professional artist with highly commendable professional achievement in the subject concerned.

Desirable

(1) Specialisation in Kathak.

Note : Other things being equal preference will be given to women candidates.

2. In case of selection of women candidate—willingness to accept Hostel duties and residence in the Girl's Hostel and charge of extra curricular activities such as games, N.C.C., Canteen, N.S.S. etc.

14. **Lecturer in Physical Education** (One) (Faculty of Arts)

Qualifications : Essential

(1) An M. Phil. Degree or a recognised degree beyond Master's level or published work indicating the capacity of the candidate for independent/research work; and (2) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in Physical Education or an equivalent degree of a foreign University.

Desirable

(1) A Doctor's Degree in a relevant subject or research work of an equally high standard.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (2) above.

Provided further that if a lecturer in a discipline other than Physical Education is required to be appointed in the Faculty of Physical Education, the qualifications prescribed for recruitment to the post of Lecturer in the parent discipline may be insisted upon.

Provided further that if a candidate possessing an M. Phil. degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record may be appointed provided he has done research work for atleast one year or has practical experience in a research laboratory/organisation on the condition that he will have to obtain M. Phil. Degree or recognised degree beyond Master's level degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments intil he fulfils these requirements.

Explanation

1. For the purpose of determining high second class, the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken.
2. For determining consistently good academic record, a candidate should either have an average of 55% of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

15. **Professor of Mechanical Engineering** (Industrial Management) (One) (Instt. of Technology)
Grade : Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications : Essential

(1) Doctorate Degree and/or published work of very high standard. (2) A first or second class Master's Degree in the subject concerned or an equivalent qualification (3) About ten years experience in responsible position in teaching/research/industry. (4) Experience of having guided research work of high standard or evidence of original work in Design/Development.

Desirable

(1) Corporate Membership/Fellowship of professional organisations/learned societies. (2) Research publications in standard journals.

Note : Those who have already applied in response to Advt. No. 16/79-80 need not apply again.

16. **Professor of Mining Engineering** (Mine Environment) (One) Instt. of Technology)
Grade : Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications: Essential

(1) Doctorate Degree and/or published work of very high standard. (2) A first or second class Master's Degree in the subject concerned or an equivalent qualification, (3) About 10 years experience in a responsible position in teaching/research/industry with specialisation in the field of Mine Environmental Engineering. (4) Experience of having guided research work of high standard or evidence of original work in design/development.

Desirable

(1) Corporate membership/fellowship of professional organisations/learned societies (2) Research publication in standard journals.

17. **Reader in Mechanical Engineering** (Industrial Engg.) (One) (Instt. of Technology)
Grade : Rs. 1200-50-1300-60-1900.

Qualifications : Essential

(1) Doctorate Degree in the subject or published work of an equally high standard. (2) A first or second class Master's Degree in the subject concerned or an equivalent qualification. (3) About five years experience in responsible position in Teaching/Research/Industry.

Desirable

(1) Research publications in standard journals. (2) Membership of learned bodies and societies.

Note : Those who have already applied in response to Advt. No. 16/1979-80 need not apply again.

18. **Reader in Metal Mining and Surveying** (One) (Instt. of Technology)
Grade : Rs. 1200-50-1300-60-1900.

Qualifications : Essential

(1) Doctorate Degree in the subject or published work of an equally high standard. (2) A first or second class Master's Degree in the subject or an equivalent qualification. (3) About five years experience in responsible position in teaching/research/industry with specialisation in the field of Metal Mining and Surveying.

Desirable : (1) Research publications in standard journals. (2) Membership of learned bodies and societies.

19. **Reader in Ore Dressing** (One) (Dept. of Mining Engg.) (Instt. of Technology)
Grade : Rs. 1200-50-1300-60-1900.

Qualifications : Essential

(1) Doctorate Degree in the subject or published work of an equally high standard (2) A first or second class Master's Degree in the subject or an equivalent qualification. (3) About five years experience in responsible position in teaching/research/industry with specialisation in the field of Ore Dressing.

Desirable

(1) Research publications in standard journals. (2) Membership of learned bodies and societies.

20. **Reader in Mining Machinery** (One) (temporary likely to be made permanent) (Institute of Technology)
Grade : Rs. 1200-50-1300-60-1900.

Qualifications : Essential

(1) Doctorate Degree in the subject or published work of an equally high standard. (2) A first or second class Master's Degree in the subject or an equivalent qualification. (3) About five years experience in responsible position in teaching/research/industry with specialisation in the field of Mining Machinery.

Desirable

(1) Research publications in standard journals. (2) Membership of learned bodies and societies.

21. **Reader in Pharmacognosy** (One) (Instt. of Technology)
Grade : Rs. 1200-50-1300-60-1900.

Qualifications : Essential

(1) Doctorate Degree in the subject or published work of an equally high standard. (2) A first or second class Master's Degree in the subject—M. Pharm. (Pharmacognosy) or an equivalent qualification. (3) About five years experience in responsible position in teaching/research/industry.

Desirable

(1) Research publications in standard journals. (2) Membership of learned bodies and societies.

22. **Lecturer in (Mine) Surveying** (One) (Instt. of Technology)
Grade : Rs. 700-40-100-50-1600.

Qualifications : Essential

(1) Consistently good academic record with first or high second class (B+) Master's Degree in the subject or an equivalent degree of a foreign University. (2) Some experience in teaching/research/industry with specialisation in Mine Surveying.

Desirable

(1) Doctorate Degree in the subject. (2) Original work as evidenced by technical publications/project reports in any aspect of Mining).

23. **Lecturer in Mining Engineering** (Two—one permanent and one temporary likely to be made permanent) (Instt. of Technology)
Grade : Rs. 700-40-1100-50-1600.

Qualifications : Essential

(1) Consistently good academic record with first or high second class (B+) Master's Degree in the subject or an equivalent degree of a foreign University (2) Some experience in teaching/research/industry.

Desirable

(1) Doctorate Degree in the subject. (2) Original work as evidenced by Technical publications/project reports in any aspect of Mining. (3) Specialisation in Metal Mining/Coal Mining/Mine Planning/Mine Surveying/Mining Machinery.

24. **Lecturer in Drawing** (Mining) (One) (Dept. of Mining Engg.—Instt of Technology)
Grade : Rs. 700-40-1100-50-1600.

Qualifications : Essential

(1) Consistently good academic record with first or high second class (B+) in the subject or an equivalent degree of a foreign University. (2) Some experience in teaching/research/industry with specialisation in Engineering Drawing/Mine Machinery Drawing and Design.

Desirable

(1) Doctorate Degree in the subject. (2) Original work as evidenced by technical publications/project reports in any aspect of Mining.

Note : The Lecturer in Drawing meant for teaching basic drawing, Mining Machinery Drawing and Design to the undergraduate students of Mining Engineering will also be required to teach other subjects of Mining Engineering. Therefore, candidate with mining background and degree will be given preference (applicable for post No. 24 only).

Note : Those who have obtained Doctor's Degree in the subject concerned will also be considered irrespective of the fact whether they have a Post-Graduate Degree in the subject or not (*applicable for all the posts in the Institute of Technology*).

HARYANA AGRICULTURAL UNIVERSITY
HISSAR
Advertisement No 4/82

APPLICATIONS invited for following posts. Higher start outstanding qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc according to University Rules. Applications of the candidates already in service must reach through proper channel upto the fixed date. Applications on prescribed form (obtainable free by sending self-addressed unstamped envelope size 23 x 10 cms to...Assistant Registrar—HAU, Hissar) accompanied by prescribed fee of **Rs 10** in the form of Crossed Postal Order in the name of Superintendent (G). HAU, Hissar payable at HAU Post Office Hissar, should reach Registrar by **7-6-1982 (22-6-82 for candidates residing abroad)**. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be superscribed as "Application Form for the Post of......"

1. **Chief Scientist (Buffalo Research):** (One): Essential : (i) Second class B V.Sc./B Sc. (A.Sc.)/B Sc. (Dairying)/B.Sc. (Ag.). (ii) Second class M Sc./M.V.Sc. in any branch of Animal Sciences. (iii) Ph.D. in any branch of Animal Sciences. (iv) Ten years experience of research/teaching/extension in Animal Prod. out of which atleast five years should be as Associate Professor or equivalent rank. Desirable : Experience in organisation and management of large herds of Buffalo.

2. **Senior Plant Breeder (Bajra)** : (One): Essential : (i) Second class B Sc. (Agr.)/B.Sc. (ii) Second class M.Sc. (Agr.)/M.Sc. in Plant Breeding/Genetics/Agril. Botany. (iii) Ph D. in Plant Breeding/Genetics/Agril. Botany. (iv) Ten years experience of Research/Teaching/Extension Education in any of the above preferably on Bajra Crop out of which atleast 5 years should be as Associate Professor or equivalent rank. Desirable : (i) Experience in resistance breeding. (ii) Knowledge of Statistics/Biometrical Genetics.

3. **Associate Director (Farm Advisory Service)** : (One): (i) Second class Bachelor's degree in Agriculture/Animal Science/Vety. Science/Home Science/Basic Science. (ii) Second class Master's degree in Agriculture/Animal Sc./Veterinary Science/Home Science/Basic Science. (iii) Ph.D. in any branch of Agriculture/Animal Science/Veterinary Science/Home Science/Basic Science. (iv) 10 years of experience of teaching/research/extension out of which atleast 5 years should be as Associate Professor or equivalent rank. (v) Out of the 10 years total experienee, 5 years experience should be in planning, organising and executing the extension education programme at various levels.

4. **Joint Director (Extension) (Leave Vacancy)** : (One) : Essential : (i) Second class B.Sc./BSc. (Agr.)/B.V.Sc. & A.H./B.Sc. (An. Scs.)/B.Sc. (Home Science) followed by second class Master's degree in Extension Education Agricultural Extension Dairy Extension/Veterinary

Extension/Home Science Extension. (ii) Ph.D. in Extension Education/Agricultural Extension/Dairy Extension/Veterinary Extension/Home Science Extension. (iii) At least five years experience of Teaching/Research/Extension, preferably in Agricultural Information/Communication.

5. Principal College of Agriculture, Kaul : (One) : Essential : (i) Second class graduate in any branch of study. (ii) Second class Master's degree in Basic Sciences or Agriculture. (iii) Ph.D. in any field of agriculture/basic sciences with five years experience of teaching/research/extension in the subject OR M.Phil. in any field of agriculture/basic sciences with seven years' experience of teaching/research/extension in the subject. **Desirable**: Ability to organise a department/college and interest in co-curricular activities and sports

Note : One or more of the essential qualifications relaxable for candidates with outstanding attainments/experience.

5(A) Associate Professor Horticulture (Leave Vacancy) : (One): (i) Second class B.Sc. (Ag.)/B Sc. (ii) Second class M.Sc. Horticulture. (iii) Ph.D. in Horticulture (Pomology). (iv) Five years experience of Teaching/Research/Extension in Horticulture (Pomology).

6. Scientist (Child Development) : (One): **Essential**: (i) Second class B.Sc. Home Sc. (Hons.) in Child Development/B.Sc. Home Sc. (ii) Second class M.Sc. in Home Science Child Development. (iii) Ph.D. in Child Development. (iv) Five years experience of teaching/research/extension in the field of Child Development.

7. Scientist (Livestock) : (One) : **Essential** : (i) Second class B.V.Sc. & A.H./B.Sc. (An.Sc.)/B Sc. (Ag.)/B.Sc. (Dairying). (ii) Second class M.Sc. in any branch of Veterinary/Animal Sciences. (iii) Ph.D. in any branch of Veterinary/Animal Sciences. (iv) Five years experience of research/teaching/extension in Veterinary/Animal Sciences.

8. Extension Specialist (Home Science) : One : **Essential** : (i) Second class B.Sc. in Home Science. (ii) Second class M Sc. in Home Science/Extension Education. (iii) Five years experience of extension/teaching/research in Home Science. **Desirable** : (i) Ph.D. in Home Science. (ii) Familiarity with experience and capacity in organising women's programmes in rural areas. (iii) Persons without Ph.D. will have to obtain Ph.D. within 5 years of the appointment unless extended in the interest of University work, otherwise their future increments will be stopped.

9. Extension Specialist (Poultry) : (One) : (i) Second class B.Sc. (Ag.)/B.Sc. (Ani. Scs)/B.V.Sc. & A.H. (ii) Second class Master's degree in any branch of Vety. and Animal Sciences with specialization in Poultry Science. (iii) Ph.D. in any branch of Veterinary and Animal Sciences with specialization in Poultry Science. (iv) Five years experience of Research/Teaching/Extension in Poultry Science. Desirable : (i) Proficiency in Hindi and experience of Poultry Farm Management/Production.

10. Coordinators : (Nine) (i) Second class B.Sc. (Ag.)/B.V.Sc. & A.H./B.Sc. (An.Sc.)/B.Sc. (Home Sc.). (ii) Second class M.Sc. (Ag.)/M.V.Sc./M.Sc. (An. Sc.)/M.Sc. (Home Sc.). (iii) Ph.D. in any branch of Agriculture/Animal Sciences/Veterinary Science/Home Science. (iv) Five years experience of Extension/Research/Teaching, preferably experience in organising and executing extension education programmes.

Note : In case of candidates from the discipline of Agricultural Engg. the requirements of Ph.D. is relaxed to M. Tech. or M.Sc. (Agri. Engg.).

11. Geneticist : (One) : **Essential** : (i) Second class B.Sc. or B Sc. (Agri.). (ii) Second class M.Sc. in Genetics/Plant Breeding. (iii) Ph.D. in Genetics/Plant Breeding. (iv) Five years experience in Research/Teaching preferably in tissue culture and/or Somatic Cell hybridization as evidenced by published work.

12. Research Engineer : (One) : **Essential** : (i) Atleast second class Bachelor's degree in Agril. Engineering. (ii) Atleast second class Master's degree in Agril. Engg. with specialisation in Farm Machinery & Power. (iii) Five years' experience in design and development of Farm Machinery and equipments. **Desirable** : Ph.D. in Agril. Engineering (FM &P).

13. Senior Medical Officer : (One) : Essential : (i) M B.B.S. or equivalent. (ii) House Surgeon experience of one year. (iii) Post-graduation in Medicine or Surgery. (iv) Atleast 7 years experience. **Desirable** : Experience in administrative capacity.

14. **Assistant Professor** (Botany) : (Leave vacancy) : (Two) : (Discipline-Botany)

15. **Assistant Professor** (Child Development) : (Three) : (Discipline Home Sc. with specialisation in Child Development)

16. **Assistant Scientist** (Vety. Microbiology) : (One) : Discipline-Vety. Microbiology)

17. **Assistant Immunologist** (Vety. Microbiology/Virology) : (One) : Discipline-Vety. Bacteriology).

18. **Assistant Professor** (Parasitology) : (One) : (Discipline-Parasitology with experience in Protozoology).

19. **Assistant Professor** (Helminthology : (One) : (Discipline-Parasitology with exposure in Helminthology)

20. **Assistant Research Officer** (Vety. Parasitology) : (One) : (Discipline-Vety. Parasitology with specialisation in Vety, Entomology).

21. District Extension Specialist (Vety.) : (Nine) : (Discipline-Any branch of Vety. Science).

22. Assistant Climatologist : (One): (Discipline-Agril. Meteorology/Climatology).

23. Assistant Professor (Horticulture) : (One) : (Discipline-Horticulture)

24. Assistant Professor (Genetics) : (One) : (Discipline-Genetics).

25. Assistant Professor Home Science Extension Education (Leave vacancy) : (One) : (Discipline-Home Science Extension Education).

26. Assistant Professor (History) : (One) : (Discipline-History/Ancient Indian History).

27. Assistant Nematologist : (One) :

Preservation) : (One) : (Discipline-Hort/Veg./Food Tech /Home Science (Foods & Nutrition) with specialisation in Fruit & Vegetable Preservation).

29. Assistant Scientist (Vety. Medicine) : (One) : (Discipline-Vety. Medicine).

30. Assistant Research Officer (Pica in Camels) : (One) : (Discipline-Vety. Medicine).

31. Assistant Bacteriologist : (One) : (Discipline-Vety. Bacteriology).

32. Assistant Geneticist : (One) : Discipline:Genetics/Botany/Plant Breeding with training in tissue culture),

33. Junior Health Scientist (One) : (Discipline-Vety. Medicine or allied subject.

34. Assistant Vegetable Botanist : (One) : Discipline-Horticulture/Vegetable/Plant Breeding/Genetics)

Qualifications (for Posts at Sr. Nos. 14 to 34) :

(i) At least second class at Bachelor's level. (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the disciplines mentioned against each post OR at least second class Master's degree followed by Ph.D. in the desciplines mentioned against each post.

35. **Assistant Scientist (Programming)** : (One) : (i) Second division B.A./B.Sc. with Mathematics. (ii) M.Sc. 1st Division in Statistics or M.A./M.Sc. in Mathematics in the first division followed by one year post-graduate training in Statistics. (ii) One year training/diploma in computer programming from a recognised Institution.

36. **Assistant Scientist (Vaccine Production)** : (One) : (i) Second class B.V Sc. & A.H./B.V.Sc. (ii) 1st class Master's degree in Vety. Medicine or allied subject with specialization in protozoan infections. (iii) 3 years experience of research in vaccine production OR Ph.D. in Vety. Medicine (with specialization in Preventive Medicine) or allied subject.

37. **Junior Reproductive Physio Pathologist** : (One) : Essential : (i) Second class B.V.Sc. & A H./B.Sc. (Animal Science). (ii) Second class M.Sc. in Animal Physiology/Physio-Pathology or in any related discipline with three years experience of Research/Teaching in Reproductive Physio Pathology as evidenced by published work OR Ph.D. in Reproductive Physio-Pathology. Desirable : Knowledge of French/German/Russian. (ii) Knowledge of modern methods of investigations in Reproductive Physio-pathology.

38. **Assistant Professor Physical Education (Badminton)** : (One) : Essential : (i) Bachelor's degree with at least

1-year course leading diploma in Physical Education. (ii) N.S./N.I.S. diploma in concerned sport (Badminton). (iii) M.P.E. regular course/ M.P.E. (Summer Course)/M E.Ed. (1-year course)/M.A. in Physical Education (2-year course)/M.P.Ed. (2-year course). (iv) At least 3 years coaching/teaching experience in a College/ University. (v) Participation in Inter-University/State/National/ International level in Badminton. **Desirable**: (i) Qualified official in the concerned sport. (ii) Publication of Books/ Articles in Journals· (iii) Coaching Inter - Versity/State / National /International teams.

39. **Assistant Engineer (Electronics)**: (One) : Degree or Diploma in Electronics Engineering with 5 years experience in instrumentation. Preference will be given to persons with knowledge of handling Key Punch Machines of IBM or ICL.

40. **Lady Medical Officer** : (One) : Essential: M.B.B S., D.G.O. **Desirable** : Five years' Gynae experience in a hospital.

41. **Exhibition Officer** : (One) : (i) Graduate preferably in Agriculture. (ii) Atleast five years' experience in design production & organisation of exhibition for the education of farmers in matters relating to Agriculture & Animal Husbandry. Should also possess adequate knowledge of Hindi & English for such work :

Note :
1. For posts at Sr. Nos. 1 to 12 one or more qualifications relaxable in case of candidates found otherwise outstanding.
2. Special weightage will be given to extension experience possessed by the candidates for posts in discipline amenable to extension.
3. For posts at Sr. Nos. 14 to 39, one or more qualifications relaxable in case of candidates found otherwise very suitable.
4. For posts at Sr. Nos. 14 to 37, persons who do not possess Ph.D. at the time of their selection shall not be allowed to cross the stage of Rs. 1300/- in the scale of Rs. 700-40-1100-50-1600 till they complete Ph.D.
5. No. of posts mentioned against each post is likely to vary.
6. For all the posts, reservation for different categories will be as per Haryana Government Rules.
7. Those who have already applied for the same post with the same designation and same qualifications and where interview has not been held, need not apply again.

PAY SCALES

Sr. No. of post	Pay scale	Total emoluments at the initial of the pay scale (exclusive of House Rent).
1 to 3	Rs. 1500-60-1800-100-2000-125/2-2500	Rs. 2250/-
4 to 12	Rs. 1200-50-1300-60-1900	Rs. 1905/-
13	Rs. 1100-50-1600+N.P.A. and rent free accommodation.	Rs. 2172/-
14 to 38	Rs. 700-40-1100-50-1600.	Rs. 1268/-
39	Rs. 900-40-1100-EB-50-1400-60-1700	Rs. 1172/-
40	Rs. 700-40-1100-50-1300+N.P.A. and rent free accommodation	Rs. 1564/-
41	Rs. 700-40-1100-50-1300.	Rs. 1268/-

REGISTRAR

PUNJABI UNIVERSITY
PATIALA

Advertisement No 1-A/SPS/PRO/Estt.82

1. **Professor for Bhai Jodh Singh Chair of Sikhism : One**
(Grade Rs. 1500-60-1800-100-2000-125/2-2500)

Candidate should have a first class or high-second class Master's degree from an Indian University or an equivalent degree from a foreign University in Religious Studies, Philosophy, Literature or History as well as a doctorate with independent published research work of high quality in the field of Sikh learning.

Candidates should have at least ten year's experienee of teaching post-graduate classes and of guiding research relaxable for outstanding scholars with established reputation who have made significant contribution to this area of study. They should also be familiar with the history and doctorines of other major world religions, knowledge of Sanskrit and/or Persian will be an additional-qualification.

2. Professors (One each for Political Science and History)
(Grade Rs. 1500-60-1800-100-2000-125/2-2500)

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten year's experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Note : Persons who have already applied for the post of Professor in Political Science in response to our earlier advertisement need not apply again.

3. **Readers** : (One in Political Science and Three in Punjabi including one on purely temporary basis)
(Grade : Rs 1200-50-1300-60-1900)

Qualifications

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five year's experience of teaching and/or rasearch provided that at least three of these years were as Lecturer or in an equivalant position.

This condition may be relaxed in the case of candidates with outstanding research work.

4. **Reader in Law** : (For Faridkot Centre) **One**: (Grade Rs 1200-50-1300-60-1900)

Qualifications

At least second class Master's degree in Law from a recognised University or its equivalent degree. Preference will be given to those who possess Doctorate in Law.

Desireable

About five years experience of teaching and/or research, out of which at least three years should be as Lecturer or in an equivalent position.

Specializations

Reader in Political Science

(i) Modern Political Analysis
(ii) Contemporary Political Thought
(iii) International Politics.

Note : Persons who have already applied for the post of Reader in Political Science in response to our earlier advertisement need not apply again.

5. **Lecturers**

(One each in Political Science Shabad Jor Kosh Cell and Statistics) (The vacancy in Statistics is a leave vacancy upto **29.3.1984**).
(Grade: Rs 700-40-1100-50-1600)

Qualifications

(a) Doctorate's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Specialization

Lecturer in Political Science

(1) Modern Political Analysis.

(2) Contemporary Political Thought.

(3) International Politics.

Note : Persons who have already applied for the post of Lecturer in Political Science in response to our earlier advertisement need not apply again.

Lecturer, Shabad Jor Kosh Cell

(i) Master's and Doctorate degree should be in the subject of Punjabi;

(ii) He/She should have good knowledge of grammar/Linguistics;

(iii) He/She should have sound knowledge of more than one dialect of Punjabi;

(iv) He/She should have knowledge of Sanskrit/Hindi and Persian/Urdu.

6. **Research Assistant** (One) in the Directorate of Planning and Development (Punjabi)

(Grade Rs. 550-20-650-25-750)

Qualifications

Master's degree in Punjabi with at least 55% marks. Persons (a) with higher qualifications and teaching and/or research experience; and (b) having studied Economics/Pol. Sc./History/Sociology/Pub. Admn. at B.A. level and passed that paper with atleast 50% marks, will be preferred.

7. **Research Assistant** (One in Dramatic Art (Grade Rs. 550-20-650-25-750).

Qualifications : Essential

M.A. in Dramatic Art (First Class) OR M.A., in Dramatic Art (Second Class) with one year's research or practical experience in theatre arts

OR

B.A. with a Diploma from National School of Drama with 2 year research or practical experience in theatre arts.

Desirable

1. Publication of papers or articles in Journals of merit.

2. Proficiency in music.

3. Experience of working in the related drama media (radio, Television and films.)

4. An additional M.A. degree in literature or a social science.

8. **Junior Research Fellows** : (U.G.C.): (One each in Chemistry and Hindi) @ Rs. 600/- p.m. all inclusive)

Qualifications

Junior Research Fellow is open to persons preferably below the age of 30 years, who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B+in the seven point grade system).

9. **Research Scholar-cum-Demonstrator**: (Two) (One each in Inorganic Chemistry and Physical Chemistry) (Tenable for two years in @ Rs. 600/- p.m. all inclusive, in the first instance)

Qualifications

Candidates should possess at least second class Master's degree with at least one year teaching/research experience after obtaining Master's degree provided that the condition of experience may be relaxed in the case of first class M. Sc. provided further that a candidate with at least 55% marks both in B.Sc. and M.Sc. could be considered in case no first class M.Sc. is available.

10. **Research Scholar in Human Biology** : (One): (Tenable for two years in the first instance) @ Rs. 600/- p.m. all inclusive)

Qualifications

Same as mentioned in Sr. No. 9 above.

General

Candidates for teaching & research posts should possess working knowledge of Punjabi upto Punjabi Praveshka standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi with in a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness Allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed postal order worth **Rs 5/-** (**Rs 2**/- for candidates belonging to Scheduled caste/tribes and backward classes) drawn in favour of the Registrar, Punjabi University, Patiala should reach the University by **3.6.82**. The forms can be had from the Production & Sales Officer, Publication Bureau, Punjabi University, Patiala on payment of **Re 1**/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. stamped with **35 paise** postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF ————

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **7.6.82**

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR
Advertisement No. 14/82

Applications are invited for one post of Deputy Registrar and two posts of Assistant Registrar in the scale of pay of Rs. 1100-50-1600 and Rs. 700-40-900-EB-40-1100-50-1300 respectively at this Institute. *Out of these posts one post of Assistant Reeistrar is reserved for Scheduled Caste/Scheduled Tribe candidate.*

Qualifications and Experience

Deputy Registrar

Essential

1. At least High Second Class Degree in Arts, Science, Commerce, Engineering, Technology or Business Administration.

2. Good administrative experience (12 yrs. or more) in a position under Govt. University/large educational Institution or Business Organization of repute.

3. Must have experience in the conduct of Examinations/Administrative Procedures/ Recruitment etc.

4. Experience in handling Agenda, Minutes and Procedure of Meetings.

5. Capacity to develop corporate life within a residential institution and should have wide sympathy with students.

Assistant Registrar

Essential

1. Good degree in Arts, Science, Commerce or Business Management.

2. At least 10 years' experience in a responsible position under Govt./University or in a large Educational Institution or Business Organization of repute.

3. Must have good knowledge of procedure of general administration or accounting of cash and other transactions preferably both and be able to draft reports and Minutes of Conferences.

Desirable

4. Experience of Supervision of Examination work, Assessment, Personnel Recruitment/Services Rules, Student Welfare Work, proved capacity to understand students and their problems.

The requirement of experience may be erelaxed in case of candidates with an excellent academic record and/or training in Management.

Posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

Applications must be made on prescribed form obtainable free of charge from the Assistant Registrar (Rect. & Asmt.) Room No. 483, Recruitment Section, Faculty Building of the Institute by sending a self addressed unstamped envelope of 25 cm x 10 cm size. Application should be accompanied by a crossed Indian Postal Order of **Rs 7 50 (Rs. 1 87)** for SC/ST candidates.

Those who have already applied earlier in response to our Advertisment No. 40/80 need not apply again.

Special consideration will be given to disabled persons, possessing the requisite qualifications and whose handicap will in no way be impediment to their assigned duties.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016 (India) on or before **May 31, 1982**.

UTKAL UNIVERSITY

Advertisement No. Estt-I/886-CA-10637/82 **Dated 24.4.82.**

Applications in seven copies are invited in the prescribed form alongwith attested copies of certificates and mark lists of all examinations passed for the following posts of the University on or before **31.5.82.**

Sl. No.	P.G. Department Post	No.	Specialisation
1.	Psychology—Professor	1	(Substantive)
2.	Commerce—Professor	1	(Substantive)
3.	English —Professor	1	(Temporary)

Scale of Pay

Professor Rs. 1500-60-1800-100-2000-125/2-2500/. Higher initial salary can be given in case of highly suitable candidates.

Age of Superannuation—60 years.

Essential Qualification

Professor : The Professor shall :

(i) be a Scholar of eminence.

(ii) possess a good academic record with First or High Second Class Master's Degree in the Subject. In cases of other suitably qualified candidates, the high second class at M.Sc. may not be insisted upon;

(iii) have a Doctorate Degree or published work of equivalent standard;

(iv) have independent published research work of high standard in addition to the published work mentioned in (iii) above:

(v) be engaged in active research and have experience of successful supervision of doctoral research in the subject;

(vi) be a teacher for ten years out of which at least seven years should have been spent in regular teaching in Post-Graduate/Honours classes.

Prescribed application forms can be had from the Registrar, Utkal University in person on payment of Rs 7 49 including local sales tax (**Rupees seven and paise fortynine**) only or by post on receipt of a crossed Indian Postal Order for **Rs. 9/- (Rupees nine)** only payable to the Registrar, Utkal University, Vani Vihar, Bhubaneswar-4. (751004).

S. K. Ray
REGISTRAR

MEERUT UNIVERSITY
MEERUT

Applications are invited for the following teaching posts :

Reader

(A) One post of Reader each in Zoology, English, Political Science, Economics and History sanctioned by the U.G.C. as the First Charge during the Sixth Plan Period.

(b) One Temporary Post of Reader in Mathematics against a leave vacancy for a period of about two years.

Pay Scale : Rs 1200-50-1300-60-1900.

Minimum Qualifications for the Post of Reader

(1) Good academic record with doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials; and

(2) Five years experience of teaching or research including atleast three years as Lecturer or in an equivalent position.

Provided that the requirement contained in clause (2) may be relaxed in the case of a candidate who, in the opinion of the Selection Committee, has outstanding research work at his credit.

Explanation

For determining consistently good academic record, a candidate should either have an average of 55% of the two examinations prior to Master's degree i.e. Graduation and Intermediate (irrespective of the marks obtained in any of two examinations) or 50% marks at each of the two examinations separately.

Desirable Specialization for the Post of Reader in

(i) **Zoology** : Parasitology or Experimental Parasitology.

(ii) **English** : Nineteenth Century Prose and Poetry or Twentieth Century Fiction.

(iii) **Political Science** : Research Methodology in terms of Empirical Research in either National or International fields of the subject.

(iv) **History** : Modern or Ancient Indian History.

(v) **Mathematics** : Fluid Dynamics.

Note : For the above mentioned posts of Readers other things being equal, preference will be given to the Scheduled Caste/Tribe candidates who are considered fit. Such candidates should indicate in their application that they belong to scheduled caste/tribe and attach certificate to that effect from the District Magistrate of the District to which they belong. No other certificate for this purpose will be entertained.

Prescribed application forms can be obtained by sending a self addressed envelope of size 23x10 cm and stamped worth Rs. 1.10 accompanied by a Bank Draft of Rs. 15/- in favour of of the Finance Officer, Meerut University, Meerut to the **Dy.** Registrar (Accounts) or by cash payment of **Rs. 15/-** at the cash **counter of the University. Last date for submission of appplication form to the Registrar. Meerut University. Meerut is 1st June, 1982.** Cheques. **I.P.O.** or M.O. are not **acceptable.** While requesting for application form please mention "APPLICATION FOR TEACHING POST" on the envelope. Request for application form should reach the University latest by **25.5.1982**

Dr Bholendra Singh
REGISTRAR

POPULATION RESEARCH CENTRE ANDHRA UNIVERSITY WALTAIR

Advertisement

Applications in the prescribed proforma are invited for the following posts in the Population Research Centre, Department of Statistics, Andhra University, Waltair.

The posts are purely temporary.

1. Name of the post : **Lecturer**
No of Posts : One

Qualifications .

1. Atleast second class post-graduate degree in [illegible] graphy.
2. Persons with P.G. Degree in [illegible] studies/Mass Communication (Desirable).

Experience

Experience in Teaching/Research in Population Studies/Demography/Conduct of Socio-economic/Demographic Surveys (Desirable)

Scale of Pay : Rs 700-40-1100-50-1300 (Non—D.A. merged scale)

II. Name of the post : **Research Investigator**
No of Posts : Two

Qualifications

[illegible] in Sociology/ Psychology/ [illegible] Economics/ Mathematics/ [illegible] Demography/ Geography.

Experience : Atleast 3 years experience in collection/analysis of data/conducting of field surveys.

Scale of Pay : Rs 700-30-1060-35-1200 (D A. merged scale)

Note : Selected candidates must be prepared to undertake survey research work in the rural and urban areas of Andhra Pradesh.

Special Note : Candidates who have applied for the posts of Research Officer (Now lecturers/Research investigators in response to the advertisement given in the month of **May 1981** need not apply now.

Requisition for the application form, may be made to Sri N. Sitaramayyas Finance Officer, Andhra University accompanied by a self-addressed stamped envelope and a bank challan for one rupee remitted in the State Bank of India in favour of Andhra University, Waltair.

The completed application forms should be sent so as to reach the Registrar, Andhra University, Waltair 530 003 on or before **24.5 82**. Each application form shall be accompanied by a challan for **Rs 10/-** (Rs. ten only) or a Bank receipt remitting the amount in the State Bank of India to the credit of Andhra University Deposit towards registration fee for the application. The cover containing the application should be superscribed "Application for Appointment to the post of Lecturer/Research Investigator" in the Population Research Centre. The University reserves the right to fill or not to fill the posts. If called for the interview the candidates will have to appear for the interview at their own expense.

N. Sitaramayya
FINANCE OFFICER

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 1982-83

Applications, on the prescribed form, are invited for the following post.

Principal, A.M.U. Girls High School.

Scale of Pay : Rs. 1100- 50-1600-plus allowances.

Qualifications

A. 1. Master's degree or Honours degree of a Foreign University recognised as equivalent to the Master's of an Indian University by the U.P.S.C. or Honours degree of such Indian Universities as may be recognised equivalent to the Master's degree by the U.P.S.C.

2. A teaching Degree or a Diploma in education or its equivalent; and

3. Experience as required under any one of the following clauses:

   (a) At least 3 years experience of administrative charge of a recognised college having Intermediate or higher classes.

   (b) At least 5 years experience of administrative charge of a recognised High School.

   (c) At least 5 years experience of teaching in a recognised college or Higher Secondary School or an equal teaching experience in a Teachers training Institution.

   (d) At least 8 years teaching experience in a recognised Higher Secondary School.

   (e) At least 5 years experience including 3 years educational-administrative experience and 2 years teaching experience in a recognised High or Higher Secondary School or a Teacher Training Institution.

B. The Trained Graduate Head of recognised High Schools who have attained the age of 45 years and possess at least 15 years teaching experience of secondary classes in a recognised High/Higher Secondary School (including at least 5 years administrative experience as Head of a recognised High School).

Or

C. Persons possessing Master's degree with at least 15 years teaching experience in a recognised Higher Secondary School and/or a recognised college and have attained the age of 45 years.

Or

D. The Trained Post Graduate Heads of the recognised Middle Schools, who possess at least 8 years administrative experience as Heads of recognised Middle Schools.

Or

E. Persons possessing Master's degree in Education and having the requisite as provided for in any one of the foregoing clauses A to D.

Note : Two or more categories of experience can be proportionately combined of experience under categories 3(c) and (d) of A are concerned they could be combined in the proportion of 5:8 or 8:5 as the case may be.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees) on payment of **Rs. 2/-** in cash (to be deposited in the Cash Section, Finance Office, AMU) or through an Indian Postal Order payable to the Finance Officer, AMU, either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **June 7, 1982.** Incomplete applications and those received late may not be considered.

Mahmood Ali
REGISTRAR

SAMBALPUR UNIVERSITY

JYOTI VIHAR : BURLA SAMBALPUR

Corrigendum No. 9554/Estt I

Dated 6.5.82

In partial modification of advertisement No. 7941/Estt. I dated 15.4.1982 *it is notified for the information of all* concerned that the sentence "The academic qualification may be relaxed if a candidate has 5 years administrative experience in an Educational institute/office" occurring after (a) and (b) of I of qualifications be substituted by "Candidates having a Bachelors degree from a recognised, University with a minimum of 5 years office/administrative experience in an educational Institute office are also eligible to apply for the post of Assistant Registrar".

All other conditions remain unchanged. The last date of submission of applicotions is extended to **25.5.1982.**

N. Mohapatra
REGISTRAR

ASSOCIATION OF INDIAN UNIVERSITIES

DEEN DAYAL UPADHYA MARG, NEW DELHI-2

Applications are invited in the prescribed form obtainable from the Secretary on payment of **Rs. 2/-** for the following project posts which are sanctioned for the Sixth Plan Period but are likely to continue. SC/ST candidates will be preferred. Applications should reach the Secretary by **May 31, 1982.** Allowances as per rules.

(i) **Project Director** (Rs. 1500-2000): The person should be knowledgeable in the field of Economics of Education. He should give adequate evidence of his capability, experience and capacity for independent work.

(ii) **Research Officer** (Rs. 1100-1600) in the area of Examination reforms. Applicant should be well conversant with the different aspects of Examination reforms, should have adequate experience and publications.

(iii) **Statistician** (Rs. 700-1300). First or high second class Post Graduate degree in Statistics with research aptitude and experience of educational statistics. Training/experience in Computer Programming desirable.

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JUNE 1, 1982

Dr. (Mrs.) Madhuri R. Shah, Chairman, University Grants Commission, delivering the convocation address at the University of Poona.

ANNAMALAI UNIVERSITY
ANNAMALAINAGAR-608 002

APPLICATIONS are invited for filling up the following teaching **posts**, in the prescribed form obtainable on payment of **Rs. 10/-** to the Registrar, Annamalai University, Annamalainagar 608 002 by cash/Money Order/Postal Order (not refundable). Completed application forms (with five additional copies) **should reach the registrar on or before 10th June 1982.**

Sl. No.	Name of the Post	Number of post
1.	Professor of English	1
2.	Professor of Philosophy	1
3.	Professor of Zoology	1
4.	Professor of Marine Biology	1
5.	Professor of Statistics	1
6.	Professor of Civil Engineering	*2
7.	Professor of Structural Engineering	1
8.	Professor of Chemical Engineering	1
9.	Professor of Horticulture	1
10.	Reader in Sociology	1
11.	Reader in Structural Engineering	1
12.	Reader in Chemical Engineering	1
13.	Reader in Horticulture	1
14.	Reader in Agricultural Chemistry	1
15.	Lecturer in Sociology	2
16.	Lecturer in Physical Education	1
17.	Lecturer in Business Administration	3
18.	Lecturer in Chemical Engineering	1
19.	Lecturer in Agricultural Chemistry	1
20.	Research Associate in Marine Biology	1
21.	Lecturer in Psychology	**1

*(one for Hydrology and one for Public Health for Survey. **(Temporary)

Scale of Pay

Professor: Rs 1500-60-1800-100-2000-125/2-2500 with usual allowances.

Reader: Rs 1200-50-1300-60-1900 with usual allowances.

Lecturer & Research Associate: Rs. 700-40-1100-50-1600 with usual allowances.

Qualifications (For the posts in Sl. No. 1 to 5)
Professor

An eminent Scholar with published work of high quality actively engaged in research. Ten years experience of post-Graduate teaching and/or research. Experience of guiding research at Doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

OR

A person possessing good academic record with a Doctoral Degree in the relevant field with ten year's P.G. teaching and Research Experience.

Qualification (For the posts in Sl. No. 10)

Good Academic Record with a Doctoral degree in the relevant field or equivalent published work. Evidence of being actively engaged in (i) Research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About 5 years experience of post-graduate teaching and/or research provided that atleast three years were as, Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

Qualification (For the posts in Sl. Nos. 15, 17, 20 and 21)
Lecturer

1. A good academic record with First or High Second Class Master's degree with B plus in a relevant subject or equivalent degree of a foreign University.

2. Doctor's degree or research work of an equally high standard.

OR

A good academic record with an M. Phil. degree in relevant subject (which may be acquired while in service).

OR

Equivalent degree of a foreign University with two years research work or practical experience in a research laboratory.

For the posts in Sl. Nos. 6, 7 and 8
Professor

An eminent Scholar with a Doctors Degree in a relevant field and/or with published work of high quality actively engaged in research. Ten year's Experience of teaching and /or research. Experience of guiding research at the doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has been made significant contribution to knowledge.

Qualification (for the posts in Sl. No. 11 & 12)
Reader

A good academic record with Master's degree in relevant field and 7 years experience in teaching and/or research and development.

OR

A good academic record with a Doctor's degree in a relevant field. About 3 years experience of teaching and/or research and development.

Candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the Institution or in an Industry.

OR

Candidates from Industry or Professional fields should possess good academic record with recognised professional work of about 7 years which should include innovation and for research and development.

Qualification (for Sl. No. 18)
Lecturer: Essential

Master's degree or I Class B.E. in appropriate field in Engineering/Technology provided candidates with B.E. I Class only to take post graduate degree in Engineering/Technology by part-time course within five years of his appointment failing which they will not be eligible to earn future increments till they fulfil the requirements.

Desirable

One year's relevant professional experience outside *academic/research* institutions.

However, having regard to the requirement of emerging fields of Engineering and of developing inter-disciplinary programme, the requirement of Engineering/Technology degrees may be waived in the cases of otherwise well qualified candidates.

For the post of Lecturer in Physical Education (Sl. No. 16)
Essential

1. A good academic record with First or High Second Class (B Plus in Master's degree in Physical Education or an equivalent degree of a foreign University).

2. An M.Phil. degree or recognised degree beyond Master's level (M.P.Ed.) published work indicating the capacity of the candidate for independent/research work.

Desirable

A Doctor's degree in a relevant subject or research work of an equally high standard.

Qualification (for the post in Sl. No. 9)

Ph.D. Degree with ten years of experience in Teaching/Research in the subjects concerned.

Qualification (for Sl. No. 13 & 14)

Ph.D. degree with five years of experience in Teaching/Research in the subjects concerned.

Qualification (for Sl. No. 19)

Ph.D. degree or Master's Degree with three years experience.

Prof. A.R. Lakshmanan
REGISTRAR

UNIVERSITY NEWS

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No. 11 1982

A Fortnightly Chronicle of Higher Education
Price Re. 1.25

IN THIS ISSUE

Reasons behind the continuing crisis at Pantnagar 368
Assessing Teacher's Ability 371
Medicine by 2000 A.D. 372
A Day at the Open University 374

Convocation

Present priorities in higher education 375

Campus News

Tamil University 378
AMU computer centre 378
Summer course in research methodology 378
Universities and professional bodies 379
Linguistic structure of Sanskrit drama 379

Agriculture

Lab to land workshop 380
Research into Indian Mustard in Australia 380
ICAR scheme for scheduled castes 381

News from Abroad

Australian research on oil recycling 381
Cyprus students abroad 381
Research in Progress 382
Theses of the Month 383
Current Documentation in Education 386
Classified Advertisements 387

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

An Academic Council's Introspection

Any newspaper in India is sure to have carrried during the last several weeks news about *a* university, if not of *several* universities. The news is also sure to have been something about an agitation or an administrative lapse, lack of funds or other various ills besetting the universities in one form or the other. On reading such reports, one is only bound to get a feeling thar nothing is well with the universities.

That this is not always so therefore needs to be reiterated. Attempts are made by the universities to correct the ills, launch programmes of development and the like. Only such news is scarce in newspapers. The importance of "an introspective resolution of the Academic Council'' (of the G.B. Pant University of Agriculture and Technology) becomes significant in this context. This university was the first University of Agriculture set up in this country. Today, India has 21 universities exclusively devoting their attention to agriculture and allied disciplines.

If today agricultural production has been raised to about 130 million tonnes per annum from meagre 70 million tonnes a decade or so ago and if the rural agricultural scene shows signs of vitality, it is because of the green revolution—a large part of the success of which can be attributed to the work done in the agricultural universities.

This success of the agricultural universities, apart from other factors, can be attributed to the enthusiasm and dedication of those in the university. Slowly however due to various reasons these universities came to face some problem. The Indian Council of Agricultural Research (ICAR) itself appointed a Review Committee some years ago. Recommendations of the Review Committee are now available to the ICAR. However as yet no general disenchantment with the way agricultural universities are functioning is discernible.

The G.B. Pant University of Agriculture and Technology had been facing certain problems during the last few years. The Academic Council of the University had undertaken an exercise to study the causes and adopted an 'introspective resolution' on March 8, 1982. Perhaps it would not be far from truth to state that few universities in India undertake such self-analysis. Concern on the part of academics for the welfare of the institution can only come when they are able to identify their legitimate professional interests and healthy individual aspirations with the aims, objects and the growth of the institution they belong to. This exercise therefore on the part of academics of this university appears not only timely but also heartening. Observes the Vice-Chancellor of the university in his introduction to a booklet reproducing the relevant resolution of the Academic Council. "...the teaching community of Pantnagar University can make a reasonable claim that it has had the intellectual perspicacity to recognise the pre-requisites for its welfare and honour and also the will to set an example of orderliness and systematic and continuous improvement...."

In another recent communication the Vice-Chancellor further observes : "At a time when idealism, self-criticism and introspection are being increasingly disdained and every institution or group is engaged in grabbing more and more benefits for itself, we need to give adequate recognition privately and also in public forums to such attempts so that others too would not regard such analyses as exercises in futility."

University News is publishing, in two parts, the resolution of the Academic Council of the G.B. Pant University of Agriculture and Technology. The first part appears in this issue.

19.5.82 **—Editor**

Reasons behind the continuing crisis at Pantnagar

—An introspective resolution of the Academic Council— 8th March, 1982

An Evaluatory note adopted by the Academic Council of the G.B. Pant University of Agriculture and Technology, Pantnagar, in its 165th meeting held on 8.3.1982.

Introduction by Shri Anand Sarup, Vice-Chancellor, G.B. Pant University of Agriculture & Technology

The Academic Council of G.B. Pant University of Agriculture and Technology, Pantnagar, adopted a resolution in its 165th meeting held on 8th March, 1982, analysing the "Reasons Behind the Continuing Crisis at Pantnagar" and proposing some of the measures necessary for dealing with it.

What has been happening in Pantnagar is nothing unusual. The same things are happening elsewhere also. While the teaching community of Pantnagar University can make a reasonable claim that it has had the intellectual perspicacity to recognise the pre-requisites for its welfare and honour and also the will to set an example of orderliness and systematic and continuous improvement for nearly two years, many other institutions have not been able to stage a come-back and re-establish their prestige and pre-eminence. The reasons for the collapse of the University system are too complex to be dealt with comprehensively in a resolution. Nonetheless, members of the Academic Community have to make a beginning somewhere towards constructive thinking. The resolution of our Academic Council is a first step in this direction.

While support from outside is both necessary and valuable, no stable improvement can be expected unless the teaching community itself undertakes self-evaluation from time to time, to identify problems and devise corrective measures. It is a sign of maturity of the Academic Council that it has recognized that the capability and the power to establish a stable academic system lies more in evolving healthy traditions and appropriate conventions and the initiative of the campus community than in the Vice-Chancellor who, after all, is an ephemeral figure on the scene.

As far as I know, in many years, the G.B. Pant University's Academic Council is the first one to prepare a self-critical analysis of the kind presented in this booklet. It highlights many weaknesses but it is not an indictment. On the other hand, every right thinking person will recognize that this document is a proof of an intellectural integrity, rare these days in academic circles. Pantnagar still has a lot of problems. As the analysis presented here will reveal, we still have a number of people with a vested interest in instability. Many of us have yet to recognise that there is more to education than physics, chemistry, thermodynamics and agronomy. To mould young people placed in their charge into socially responsible, creative and culturally sophisticated citizens, teachers themselves have to widen their own horizons and rise above casteism, regionalism and narrow parochialism. The lure for power and money cannot be ignored but it has deliberately to be curbed in an academic environment and sublimated through the pursuit of knowledge. However unlikely it may appear, universities have to adopt a value system different from the norms of the market place. This, however, is easier said than done. There are many fundamental problems for which, as yet, we have no answers. If we keep on looking, may be we will find them

I hope, academic communities of other universities will also give some thought to educational problems and formulate their views. We are presenting our analyses for wider circulation essentially to initiate debates elsewhere and thus get useful feedback for further deliberation. Hopefully, by pooling ideas, the university personnel itself will be able to provide guidelines to educational planners and policy makers.

Resolution

Restrictive admissions enhance the trend of cultural insularity

(*a*) *The very restrictive admissions, because of which students from other States are not able to come to our University, results in an inbred culture.*

Starting from 1977 till recently, our UG admission policy has been such that not more than 10% (15% from 1982) students are admitted from all other states of the country taken together. This has given the University a regional rather than a national character. Unlike I.I.Ts. and other national institu-

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[*The document will be reproduced in two parts. The first part appears in this issue. Part II will appear in the next issue.*]

tions in the country, where the students from all parts of the country are admitted, 90 per cent of our students are only from the State of U.P. During their stay at Pantnagar, these students are never exposed to an environment which would represent the composite and cosmopolitan characteristics of our national culture to which people from all over the country make their special and valuable contribution.

One of the major disadvantages of Pantnagar is that it is not a big city or town where students may have opportunities to come into contact with different types of people and be exposed to the various components of national entity, that is India. Right from the first day when they are admitted they tend to identify and associate themselves with only students of their own village, town or region ; and throughout their study they remain with them, move with them, eat with them and are always influenced by them. This results in an inbred and closed culture (that is, a ghetto effect). The outcome is that their inbreeding and insularity to outside influences increases inspite of their stay in a professional institution for 3 or 5 or even 7 years during which they acquire the highest degrees from this University. Though the recently introduced Entrance Examinations are expected to bring about significant change in the profile of our student community in so far as narrow regional loyalties are concerned, the wider question of a composite and cosmopolitan environment remains.

In order to give the University a more cosmopolitan and national character—a character it should have by very definition of a University, it is absolutely necessary to seriously review our restrictive admission policy and make it more liberal and receptive to students of other States. For the good of education at Pantnagar, majority of whose recipient would always be from U.P. even if all restrictions were removed, and therefore, for the cause of quality education for the State, it is eminently desirable that good students from everywhere come and contribute to up-grading of the educational atmosphere and help in the recognition that being a citizen of India and the heir to national heritage is far more honourable than belonging to small district or region. However, to what extent the existing restrictions could be unilaterally lifted by this University without any concomitant relaxations by Universities in other States is a moot point. While it is natural to consider this aspect of the matter, it must also be realised that the argument of reciprocity, though on face of it quite attractive, leads to a vicious circle which may need to be deliberately broken. Universities must be cosmopolitan in character if they are to play a significant role in national integration. Being the first Agricultural University, Pantnagar must play a positive role in this respect. To ensure a national level action, national agencies such as U.G.C. and I.C.A.R. must insist on removal of all regional restriction on admission as a pre-requisite for their support.

Special facilities and procedures at Pantnagar contribute to inbreeding

(*b*) ***A large number of students enter this University immediately after their Intermediate Examination and go on until their Ph.D. studies, largely because of our current GPA conversion formula and admission policy.***

A large number of students start their education here after their Intermediate Examination and go on until their Ph.D., mainly because of the current GPA conversion formula which gives an edge to our own students. Furthermore, at Ph.D. level we permit admission to our own students even though they may not have completed all the requirements of M.Sc. degree, especially in respect of viva-voce examination. It would be better if admission letters are not issued unless the degree of M.Sc. has been completed by a due date which has been announced. A lot of ad-hoc appointments as Research Associate/Teaching Associates are given to our own students with the permission to join post-graduate degree programmes. This also starts an inbreeding process with no great benefit to the University, because often appointments are given irrespective of whether or not a particular student appointed as a Research Associate has the aptitude to pursue the higher studies. Thereafter, the degree is more or less thrust upon him. The policy implications of this, particularly in respect of recruitment need to be closely examined. There is another reason for the tendency to acquire all the degrees from this University. Unlike others, except for in case of majors of technology, this University has very liberal provisions for financial assistance to the Post-Graduate students. No other University in the country provides such liberal financial assistance as this University. Where this could be regarded as one of the most progressive steps towards higher education, of late, it has been thoroughly misused. It is generally said that not more than two degrees should be acquired from the same University. But in Pantnagar University, there is absolutely no encouragement for the students (except perhaps in the Faculty of Technology) to join other Universities for their M.Sc./Ph.D. programmes after their graduation. All this has resulted in considerable inbreeding, and in many of cases also encouraged completely undeserving students to come somehow upto M.Sc. and Ph.D. levels. In the light of above, this policy also needs thorough review.

It was, however, felt that the problem of inbreeding is interlinked with that the restrictive admission policies being pursued by Universities as mentioned under (a) earlier.

The Academic load of Trimester System prevents personality development

(*c*) *We have a trimester system which is packed with too much course work. In other words, we are trying to spoonfeed the students and this results in thwarting the development of their personality and does not leave time for extra-curricular activities through which they might be exposed to a wider spectrum of interests.*

It is true that the existing Trimester system is packed with too many courses, particularly in the College of Technology. In the year 1966, when the College of Technology was started, an erroneous though well meaning philosophy was adopted on an ad-hoc basis so that all the good things of I.I.Ts. and all the good things of traditional Universities like Roorkee may be combined together and the course and curricula so designed that it may meet both the requirements. At that time the total course period was 14 Trimesters. However, three years back, this was reduced to 12 Trimesters but the number of courses remained almost the same and, therefore, the courses of 14 Trimesters were somehow fitted into 12 Trimesters thereby increasing the contact hours upto the uppermost limit and in some cases even beyond any reasonable limit. This has resulted in tremendous over-loading on the students and left them with no time for thinking or self-study or even for extra-curricular activities. Recently, the visiting Panel of All India Council of Technical Education has also voiced the same feeling about the courses in the College of Technology.

Another point worth considering is that almost in the whole of the country, Semester System is being followed in which there are two Semesters in a year, and a Semester-break of about 3-4 weeks as well as the summer vacation of about 8 to 10 weeks. In our case, each student has to register thrice a year. He has to appear in the final trimester and other examinations thrice a year. The entire system is not dovetailed into the existing pattern in the country. It is, therefore, very essential that, as soon as possible, we should change over to the Semester system and in fact the Academic Council has already taken a final decision on this issue, but unfortunately it could not be implemented. It is now a high time that we must thoroughly review all our syllabii and courses and curricula as well as the change over the Semester System. In addition it is also essential that the quality of co-curricular activities be improved and the extent and variety of activities increased.

Neglect of Humanities and general education prevents a broadening of perspectives

(d) We have very little educational interaction in humanities or in the broader aspects of science and culture. This is partly because we don't have any staff trained for this purpose and also partly because we, somehow, feel that this kind of time deployment is not very useful. This, perhaps, is an erroneous attitude because we are not producing good citizens if we are not telling our students about their role and responsibilities as heads of families and social and political entities responsible for the future of the country.

This is true that whatever educational interactions in humanities that we have are through course instructions that are being provided in humanities. These courses are of a very routine nature. As we have seen, over the years, these have not yielded any results. The students have not much interest for these courses. They offer these courses only because these are compulsory and they have no way out but to take them. Besides these, it is also necessary to think of courses like History of Science and Technology, or the broader aspects of Science and Culture or courses for the appreciation of music, art and literature and the like. These courses should be taught by reputed and knowledgeable teachers. All these will certainly go a long way to change the cultural attitude of the students and broaden their personality. The emphasis in these courses should not be just to make the students pass them and take some grades. The efforts should be directed towards providing inputs to make them into good citizens and change their cultural attitude when they stay in this University for 3-4 years' period. Some of these courses can be offered as non-credit courses and if enough interest is generated in teaching these courses, a large number of students will certainly benefit from them and this is likely to bring about a distinct improvement in the conditions on this campus. Furthermore, a scheme of extension lectures by eminent people in these areas should be considered. In certain ways such a scheme could be equally effective in creative awareness of the larger aspects of life and culture.

Disruption of Academic Schedules leads to problems of indiscipline

(e) In the past we have not generally been able to prepare results before new registration. In such circumstances, the usual practice of 'academic probation' and 'dropping' could not be followed. Consequently, we are carrying a lot of dead weight of misfits who have no interest in studies and spend their time in mischief.

It is true that in the past few years the results were not submitted in time due to various avoidable or unavoidable reasons, and therefore, the trimester results could not be compiled and the usual process of "academic probation" and "dropping" could not be fully implemented. As a result of this, many students who should have been dropped at the end of the very first trimester continued from trimester to trimester and from year to year. In the later years these students became problem-children for the University since they were able neither to get their degree and complete their courses because of their incompetence and inaptitude nor could they be dropped from the University as some of them had spent 4-5 years or more on the campus. It is these students who have created lot of problems and contributed towards the continuing crisis in this University. It is true that many teachers have been submitting the results late but there were several reasons also responsible for this such as running of condensed trimesters during summer period and the registration of students on provisional basis, immediately after the last examination, even when the students had not appeared in the make-up for the final examination. Certainly steps have recently been taken to rectify some of these maladies and it is expected that things will improve as far as this item is concerned. However, it is once again essential to emphasise on all concerned that unless efforts are made at every level, the preparation of results in time will not be possible and the process of academic probation or dropping will not be implemented. This should be considered of paramount importance.

(To be concluded)

Assessing Teacher's Ability

S. M. Chanda*

It is time for our educational planners to consider seriously the task of assessing teachers' ability if they really want to raise the standard of education. Not that it is the chief problem, but it needs as much attention as some issues currently being discussed; for instance, syllabus, mode of examination and teacher-student relationship. If you accept 'how to teach and examine students' as a problem, you need to find out, as part of this enquiry, how most effectively a teacher's performance in his class can be assessed. That it is a difficult job admits of no doubt. For in the existing set-up of an educational institution arts, science or technological there is hardly any scope for such a review; a teacher's day-to-day classwork, at the under-graduate or post-graduate level, is not, and cannot be, supervised. A teacher's failure to cover his course in the allotted time may draw his authorities' attention, on account of the students' angry protests against questions on the parts of the course left untouched, but in practice no notice is taken of the nature of the work done by him. Appreciation, if at all, is made of the quantity of work done, not of its quality. To neglect this measuring a teacher's effectiveness—is to commit a grievous error of omission, for it is causing indirectly a denigration of teaching.

Here are a few observations on some proposed methods of assessment :

(a) The idea of assessment by students through answers to a questionnaire, as suggested by some foreign institutions, appears innocuous at first sight but is likely to create at times a tension between a teacher and his students. The possibility of its misuse by students cannot be ruled out altogether. Since they are young and immature, they may use such a questionnaire as an opportunity to vent their anger caused actually by personal or non-academic factors. A teacher enjoying popularity on the social plane is very likely to receive, under this system, favourable reports even though he may be below the mark in his work. But, in spite of its negative aspect, the usefulness of this method cannot be denied. For, when all is said and done, the fact remains that a teacher's primary task is to put his ideas across to his students and the degree of his success depends on how far the latter can appreciate him. If the students of a particular class fail completely to learn what their teacher wants them to learn, it is certainly a reflection on him.

(b) Dissertations are publications by scholars, valuable no doubt as research work, do not add to or in any way help to measure their effectiveness as teachers, for quite often they have little to do with teaching proper. It is not my point that teaching is more important than research; all that I suggest is that research and teaching are two altogether different kinds of work, requiring different skills and habits, and proficiency in the former does not mean any corresponding proficiency in the latter. If a man, however good at research, is interested in research only, and is not student-oriented, his proper place is on the staff of a research association.

(c) The theory that students' performance in an examination is an index is not a sound proposition. Examination results are determined by several factors oher than teaching. Not infrequently we come across teachers who, out of fear that examinees faring ill would pounce upon them, set extremely easy questions or dwell on certain parts of the syllabus in such a manner as to provide unmistakable hints. It is as good as giving away questions, and examination results in such cases, flatteringly high marks, are not at all dependable.

(d) The practice of getting teachers assessed in confidential reports by their departmental heads, as is done in many institutions, is unrealistic as evaluation. Seldom do we find departmental heads making their assessments of their colleagues' teaching work after a study on the spot. Their reports are usually speculative comments unsubstantiated by facts or are based on some student reactions which they happen to hear or which they collect by obliqe means. Conclusions drawn from hearsay evidence are likely to be erroneous.

(e) A reasonable method of assessment to my mind will be assessment in terms of comments, by each member of a department of all his departmental colleagues including himself, made anonymously. What I propose is an analysis to be made by a teacher of the strengths and weaknesses of each of his departmental colleagues. Apart from providing evaluation by the people on the job and so competent to judge, this system will encourage a closer cooperation among departmental colleagues.

From a comparative study of students' answers to a questionnaire and evaluation by a teacher of his colleagues, it will be possible, I believe, to derive the basis of a fairly objective assessment of a teachers' teaching ability. □

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Medicine by 2000 A.D.

N. N. Laha*
Tejinder Singh

One is reminded of a quotation from the daily Telegraph written for a book entitled "The Complete Short Stories" whose author was the famous Herbert George Wells—popularly known as H.G. Wells. The quotation was "A fat, heavy volume packed with humour, strangeness, horror and imaginative stimulus, many stories were written 50 years ago and it is astonishing how well they have worn". Today's topic is very much similar to any of Well's short stories like The Time Machine, The Man Who Could Work Miracles, The Truth About Pyecraft etc. These stories were written with the background of future science—the science to come—and the present topic deals with medicine in the years to come.

It is a fling of imagination...yet imaginations have sometimes proved more true than truth itself. Nineteen years from now cure may not be needed at all. The existence of mankind 19 years from now is not the point. Mankind has stood the time, it has withstood the shocks of centuries, it still survives with the coming shocks. The point is that by the year 2000 prevention may replace cure. As in a football field, we keep our eyes on the ball, rather than on the goal; but as the ball travels towards the goalmouth, it becomes, appropriate to precisely focus our mind on the goal. Till now, we have been focussing on the illnesses, by 2000, the focus may now shift to health.

The walls of any medical college boldly pen out that prevention is better than cure. By the year 2000, health and not disease of man would become the doctor's concern. The boundaries between curative and preventive medicine have already started blurring and may disappear by then. Nowforth, men must seriously think on these lines to help develop a better and stable future. For example, small things like good sanitation can prevent the dreaded rheumatic fever. Indeed, it is painful to diagnose the valve complications of this hopeless disease...where a cleaner mother could have easily prevented it. And above all, it is the duty of a physician to stress the need for a cleaner environment rather than haughtily see the patient and walk off. It is a pity to work out the statistics of the increasing percentage of mitral stenosis—rather one should think more on the cause and its eradication.

No one now seriously thinks of scurvy. But there was a time when it was a dreaded disease. Joinville mentions that the "Barber-Surgeons were forced to cut away the dead flesh from the gums to enable the people to masticate their food". It was a chance that Jacques Cartier a sailor in 1535 learnt from a native that the juice and sappe of the leaves of a certain tree cured this complaint. In 6 days dramatic results took place. Soon, James Lind a naval surgeon proved scurvy to be a deficiency disease and Vitamin C became the ultimate answer. Drifting into the past to give this story is to prove the point that simple preventive means could wipe out diseases. But it is essential that the doctors must want to wipe them out. One must remember that a doctor's existence is more of a friend, philosopher and guide rather than to merely cure a disease which could have been prevented. It can be emphasised that a spark could have been stamped off rather than the five brigade called to put off the fire!

Yet still, one has to ponder over the curative aspects. In 1981 we see to our utter dismay physicians concentrating on diseases which are lesser ones in the world of statistics. Today every physician's hero is either Freidberg, Paulwood or Hurst notable names in the world of Cardiology. A hoary of other specialities are there like neurology, nephrology etc. etc. These are not to be thrown off. These are vitally important offshoots of the tree of developing medicine. But the base is General Medicine. Remember, do not drift away from the base or else everything will collapse. Try not to forget chickenpox, measles, mumps, even the benign influenza, for these are the diseases which can be wiped out by 2000 A.D. The concentration in a primary health centre should be to eliminate these diseases from the surface of earth. A glaring example is smallpox. So the purpose should be to concentrate on simpler diseases which can be wiped out. Humphries in 19th century had said that "Medicine, like women's shoes, is governed by the dictates of fashion. But fashion ought to turn in the direction of economy, rather than pollution and waste.

Dedication to job is a part of patient care. A true physician is that who treats all alike and all with equal care. But in the year 2000, dedication will become a part of machine work, i.e. there will be a so called technological intrusion. Even today, the blood is decentralised into many laboratory investigations that ultimately give the results. These results are pooled to give the diagnosis. In the year 2000 sophistication may rise to such an extent that a drop of blood would give the entire diagonsis. Thus the earlier statement that dedication would ultimately become a part of machines rather than human endeavour.

We wish, the medical man by 2000 A.D. can develop power not to uncritically accept the technology as a definite answer, to all the complex problems. Coronary artery bypass surgery, costing around 12000 Dollars, has become a routine in hospitals of

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U.S.A. but Americans have rejected the advice of a Scientific Advisory Committee to take less than 300 Mg. of Cholesterol daily, in the absence of a "definite proof".

Some people may call it a distorted mirror, but the fact remains that the scientific trajectory of gene manipulation via the physician would survive. In the year 2000 the certified Gene Architect may think as Theodre J. Gordon in "The Future" viz. "Given the ability to tailor the race, I wonder if we would *create all men equal or would we choose to manufacture apartheid*". The races of the future may be a superior group, the DNA, RNA may be controlled, there may be special athletes for the games. research scientists may have an IQ of 200 but the bodies may be diminutive. Genetic architecture is something very new. But competitive genetic architecture will bring forth problems. "The functionalists will persuade parents to produce babies fitted for the present needs of society; the futurists will suggest children who will have a niche in the culture as it will have evolved twenty years. "Therefore, if genetic involvement of individuals occurs by 2000 A.D. different moods of human development would be seen.

In the year 2000 genetic engineering may hold out the promise of producing super people. so to remind the physician friend that organ technology would reign supreme. There will be track stars with extra-capacity lungs or hearts, sculptors with a neural device that intensifies sensitivity to texture. The art of love may mean lovers with sex-intensifying neural machinery. Even the achievement of moods may be in the hands of machines.

Have you ever heard the term "Cyborg". It means advanced fusion of man and machine. Man-Machine symbiosis has already started. There are very few cases where this is not true. The E.C.G. tells about the heart, the E.E.G. about the brain. These are two rather crude examples. By the year 2000 men will be fitted with machinery to give the entire diagnosis at once. It is definite that the stethoscope will vanish into oblivion. Medical students are learning that their ears combined with stethoscope are not as sensitive as on echocardiogram, which uses sound waves to diagnose diseases. Result may be that they are very likely to ignore the symptoms which cannot be verified by a machine. There are examples where persons having long duration fevers were scanned, biopsied, X-rayed, and what not. Drugs have been poured into the system and yet the ultimate answer turns out to be simple drug fever.

By the year 2000 transplantation will become a child's play. The future waits for us with open arms. *The speed of development is like that* Dr. Richard J. Cleveland while speaking before a conference of organ transplant specialists in January 1967 had said that the first human transplant will occur within 5 years. Yet, within a year Dr. Barnard had operated on a 55 years old grocer named Louis Washkansky. Soon a staccato sequence of heart transplant operations had exploded like a string of stars into the world's awareness. Other organ transplants will similarly hit the world in 2000 A.D.

In this context the story of a major Mid West Hospital gives interest. A patient was hiccupping violently sixty times a minute. The patient was an old pacemaker wearer. A fast thinking resident understood that the pacemaker wire instead of stimulating the heart had broken loose and was lodged in the diaphragm. It was corrected and the hiccups stopped. This is perhaps the future of 2000 A.D. when a final year student of medicine on being asked the cause of hiccups would say—"Sir, a pacemaker wire must be stimulating the diaphragm".

Cannibalizing bodies or corpses for usable transplant organs will serve to accelerate further research *for human health. Plastic or electronic substitutes* will plague the market. People may then even be selling a plastic brain.

Organ transplantation brings in the point of Euthanasia. What will be ethics involved in condemning such a person to death to obtain a healthy organ needed for transplant to save the life of a person with a better prognosis. The answer shall always be a question.

Medicine may well become aware of the ignorance it is steeped in and the uncertainties it faces. Then probably all physicians may become good, a la Munsif, who said that a good physician is one, who knows, when not to prescribe. Of course, there may not be complete demedicalisation of life, but surely all that is unnecessary, 9/10 of what is prescribed, could easily be done away by 2000 A.D.

With reference to India, the spectre of a population around a thousand million in 2000 A.D., the task of providing people with shelter food and minimum needs appear frightening in a country, where nearly 60% are below poverty line and 70% are without medical care. Compulsory sterilisation after birth of the third child, may then, appear to be the only answer. Morality, ethics and law would then change and it may become unethical to have an unlimited number of children.

This flight of imagination will make many to cast doubts about the validity of these fantassies. At the juncture, one is reminded of Faraday, who after his eventful discovery of electric motor and dynamo was asked, "What is the use of it all Mr Faraday?" He readily replied "Well, what is the use of a new born baby...?"

The physician of 2000 A.D. will watch with rapt attention the regeneration of a damaged organ like the lizard growing its tail. This perhaps will be the zenith of health for all by 2000 A.D. □

A day at the Open University

—A Report

by

Dr. Atma Ram Sharma*

A group of college principals arrived in London (from their six-week tour of the States) on 3 May 1981 for a two-week travel seminar in Britain. The present writer, a member of the visiting team, was keen to visit the Open Varsity in Milton Keynes to have a first-hand study of distance teaching. On 4 May, we had a thrilling sightseeing tour of London. On 5 May the British Council arranged a thorough programme-orientation, and a meeting with National Association of Teachers in Further and Higher Education, Mabledon Place, London. However, we eagerly looked forward to our visit to the famous Open University.

On the bright morning of 6 May, we left for the Open University at 0830 am in the company of our British Council guide, Miss L. Linton. The Varsity buildings, the nearby BBC unit, all bore a gorgeous look, and we felt as fresh as the month of May. We had discussions, seminars, presentations, etc. with a view to understanding the working of this prestigious institution, On that memorable day, the British system of higher education was sought to be studied in relation to the Open Varsity experiment. In the afternoon we had some programmes, at its Continuing Education Unit, Sherwood House. In the evening we returned to the Grosvenor Victoria Hotel, London, calm of mind, yet full of new ideas and approaches.

The British system of higher education envisages three layers —University Sector, Polytechnic, and Colleges. The University sector admits students of +18 age and has courses of study leading to degrees. Except one University in Buckingham, all varsities are financed by the Government through University Grants Committee and other agencies. The public sector includes polytechnics, and many colleges. The Polytechnic generally does the work of University, but it usually has a large number of part-time students. Below polytechnic come many types of colleges — technical colleges, colleges of higher education, colleges of commerce, and so on. These institutions admit students of +16 stage, and often also have courses of school level, a variety of courses on different crafts. Earlier such courses were available in the city of London only, but now these have been introduced almost all over the country. The decline in enrolment has encouraged two tendencies there—students between 16-19 age group are sought to be kept in tertiary colleges in place of comprehensive schools, and the component of community education is being added in the institutions imparting further education.

In the sixties it was felt that a large number of adults were bereft of education or higher education, only 15 to 16% of them could afford to go in for higher education. So the University was established in Milton Keynes (England). It admits persons of +21 age-group. As yet 18-year olds are not admitted though they confess: "Perhaps we should consider it". Besides general degrees, the Varsity organises courses leading to even M. Phil and D. Phil degrees. There is no time limit to complete a course, and its degrees are comparable with degrees conferred by traditional Universities. The Open University has six faculties—Science, Technology, Maths, Arts, Social Services and Education. Each faculty except Education has a foundation course. Institutions like Airedale and Wharfedale (Leeds), National Extension College Cambridge, International Extension College, London serve as a supplementary segment of The Open University.

One of the innovations of the Open University is the concept of Course team. A group of competent teachers produces a well-developed, critical, comprehensive course after detailed discussions and deliberations. It meets the needs of pupils who though all above 21 belong to different age-groups and have different backgrounds An average course-team, comprising at least four teachers/experts, takes about two years to write a course.

There is a provision for teaching science subjects, too. The first professor of Science convinced the Vice-Chancellor of the Varsity that distance teaching was possible in respect of science subjects as well. He observed : 'If there is keenness to learn and keenness to teach, everything is possible'. He showed it through practice and example. There Lab work is done in two ways—through home experiment kits given/sent to students, and in Summer schools each year when students go to conventional labs. TV is also extensively used as an effective tool for lab-work. A BBC unit has been established at Milton Keynes on the campus, and its channel 2 is exclusively meant for the Open University programmes.

The Open University has a large number of students in arts and social sciences. In all, 90,000 students are taking its courses. It handles 35 tonnes of mail every week! It has no commitment to international students, though a proposal could be made for the teaching of English as a foreign language. Some countries, for instance the USA and the UK, cooperate in the production of some courses.

The country is divided into 13 regions where examination centres are located. In each region there are counsellors and staff tutors to help and advise students. Tutorials provide ample time for the student teacher interaction. Teachers give detailed comments

(*Continued on page 377*)

**Principal, Govt College, Hamirpur, (H.P.).*

Convocation

Present priorities in higher education

“Let me begin by a remark that may sound somewhat platitudinous that education is a key-factor in economic development and social change. Education affects economic development both directly and indirectly, directly through increase in production and employment and indirectly by increasing mobility and by inculcating the right kinds of skills and attitudes and by removing some of the obstacles to social change and progress. Unfortunately, in India, many of these goals of higher education have not been realised fully, partly because of our vast and expansive situation and partly because of our urge to grow as rapidly as possible and to catch up with the rest of the developed world in regard to science, technology and the fruits of innovation. We have been able to build the necessary infrastructure over a period of time but this has also created problems in its wake.

“Mr. Vice-Chancellor, a convocation is hardly an occasion to go into the balance-sheet of higher education. Nevertheless, on the basis of reviews made from time to time and the assessments of the performance of students and individual institutions, one finds the emerging picture to be one of light and shades. The general impression is that the best students are as good as ever, if not better and that the contents of courses are generally of a high level. It is also a fact that outstanding work is being done by some of the university departments and a number of teachers have been receiving recognition from well-known centres of learning. The turn-out of Ph.D.'s has gone up significantly and so has research output by way of publications. It is equally noteworthy that various schemes of national development have been implemented by personnel trained in our universities. On the other hand, instruction in some universities has not kept pace with modern developments. There is a resistance to change and innovations and an atmosphere of growing violence. There is also a lack of trust between the students and teachers. It is not surprising that under the present conditions, the potentialities of the students are not fully utilised and developed by our universities and colleges. The prevailing situation is also considered unsatisfactory from the point of view of the growing expectations, the demands on the system being far greater as compared to the inputs and availability of resources.

“The present age is said to be the age of science and technology. The forces generated by science and technology and democracy have been operating in the modern world for a long time and have transformed human life from a rat-race for bread and butter to civilized norms of behaviour and cultural satisfactions. The impact of technological changes is being felt in the developing countries also but the rate of assimilation is often very slow and the process somewhat exasperating. Young students look upon education as an exclusive source of vertical mobility but they are often frustrated by the constraints of a socio-economic situation in which far too many people are chasing far too few jobs. The products of our university system are thus denied the basic opportunity to play their role in the socio-economic development of the country and invest their energy and talent in a ‘multiplier’ growth of the nation.

“Many factors are responsible for our present malaise but the most important is that in the fifties and sixties higher education was allowed to outgrow itself, much beyond our resources and the capacity of our economy to absorb the highly trained personnel and the scientific and professional manpower turned out by our universities and colleges year after year.

“While it is important that enrolment at the university level increases in order that we may keep pace with the developed countries of the world, it is equally important that this rate has some correspondence with the rate of economic growth. During the decade 1971-72 to 1980-81 university level enrolment increased by 3.5 per cent per annum as compared to 10-12 per cent in the preceding decades. During the year 1980-81 it was 3.9 per cent. Thus the growth rate during the seventies may be considered reasonable and in keeping with our present needs and requirements.

“Unplanned proliferation of institutions allowed to go on in the past was responsible for many problems like sub-viable facilities, overcrowding in classes, educated unemployment, etc. An invisible effect of lack of planning and proper direction was also the development of wrong attitudes to work and life. This is manifest in the craze for “white collar jobs” and the lack of job satisfaction among graduates in our country, for many of them are unable to find jobs commensurate with their qualifications and training and this indirectly affects their output and creativity. What is more distressing is that many university graduates feel alienated from the society of which they are an integral part.

“The above considerations would imply that there can be no education without values and norms. Whenever advances in science are measured against the evidence of the social capacity to absorb the changes and the capacity to adjust to these advances, the result is often a conflict between the great achievements of human understanding in one area and its utter failure in the other. The advances of science have been and will continue to be beneficial if necessary social adjustments are made and social values are not discarded like rotten potatoes.

"It is in this context that the remarks of Pandit Nehru are important: "What we need is science and spirituality because religion and politics based on economics have done immense harm to the world". It is hoped that the need for fundamental social and cultural change will be recognized in time and men and machinery will move together and supplement each other instead of competing with each other.

"The widely accepted function of the university is communication of existing knowledge and extension of the frontiers of knowledge by research, investigation, critical enquiry and creative activity. The progress in the functions of the university is a "sweet-sour" process in the same manner as advances in science or technology carry the mark. If the university succeeds in achieving its basic obligations—communication and extension of knowledge—it creates in the wake of its success, two problems, viz. a large number demanding access to the privileges of such education, and a tremendous increase in disciplines creating a stress in the educational activities of the university.

"Under the impact of the first, university became 'Massversity' and with the second it became 'Multiversity'. Such a dichotomy creates a dilemma for universities and the challenge is met by the new structural type of a university, the Open University, and with the curricular process for interdisciplinary approach.

"With the exponential growth of knowledge, specifically in social physical and biological sciences, synchronising with increase in the rate of obsolescence of the pervalent knowledge, it has become necessary for the institutions of higher education to ring out the old and to ring in the new in their curricular offerings.

"The world of scholarship is fast changing, the quantum of knowledge has increased beyond imagination and new life styles are battling with etsablished values. The existing pattern of education often leads to migration to urban area, with disastrous consequences for regional planning and development. It seems that our system of education is not adequately responsive to the present needs of our society, may be because the range of opportunities has changed in recent times. As a consequence of the above factors, the thrust of higher education has got to be shifted from a traditional liberal stance to a practical education for productivity and the world of work.

"Universities can no longer remain isolated from the larger society. If we admit that education is a primary need of each individual, the educational system, and more so universities, will have to broaden their educational functions to the dimensions of the society as a whole.

"Not only are our curricula outmoded, they have a built-in weakness which we have realised today. The existing curricula were tailored to suit urban areas or fully developed societies. Even in the urban sector of our economy, the undergraduates and postgraduates in sciences, engineering and agriculture are experiencing alienation and frustration due to lack of job opportunities. They do not have the necessary self-confidence, the desire and commitment to work for the transformation of the rural areas. In particular, it is said that hardly 10 per cent of agricultural graduates seek opportunities to work in rural areas. Even those agricultural scientists who have come from rural environment do not like to go back to rural India for professional and technical work. They prefer to sit idle in urban environment or take up jobs which do not correspond to the training which they have acquired. Possibly, one way to reverse the process is to improve the physical facilities and offer incentives to scientists and engineers to take up the challenging task of rural reconstruction.

"The traditional role of the universities has been to serve the society by training its youth in the field of higher education, transmitting knowledge and culture, preparing people for the professions and undertaking research. The universities are now being called upon to help apply their knowledge and do research in solving the urgent problems of the society.

"It is in this context, that the Commission has undertaken its programme for restructuring of courses. The objective of the programme is to make first degree courses relevant to the local environment and the developmental needs of the community and to link education with practical experience and productivity. Similarly, in the guidelines issued to the universities for reorganization of courses under the new pattern of education, emphasis has been laid on foundation courses which are conceived as awareness courses, core programmes consisting of one or two main subjects, applied studies and projects, extension programmes and other measures like flexibility, interdisciplinary projects and examination reforms which should result in better teaching-learning processes. The University of Poona has already taken some steps to implement the scheme of course-restructuring and instituted short-term diploma courses. But I believe that efforts in this direction will have to be augmented further in years to come.

"Due to the acceptance of democracy as our way of life, educational opportunities are no longer limited to a few urban elite but have to be planned for larger groups of persons of different strata of society and for different regions of the country. In order to reduce inequalities existing in our society, our universities will have to re-organize their structure content and strategies. Also, the universities can no longer remain ivory towers. They have to reach out to the community and hence new models and varying alternatives have to be evolved with stress on flexibility, diversification, newer techniques and widening of horizons;

"It is now generally accepted that in order to discharge its responsibility to the education system and to the society as a whole, the university must assume extension as an important responsibility and give it the same status as teaching and research. Programmes of continuing education for various professional groups have also to be developed. These are important not only for the education of the community outside the campus but because education has to be treated as a lifelong activity instead of being a terminal point. I am glad to find that the University of Poona has taken steps to initiate some programmes for the community, and students and members of the faculty have gone into the rural areas for sustained and constructive work during their vacations as part of continuing education programmes." [*Excerpts from the convocation address delivered by Dr (Mrs) Madhuri R. Shah, Chairman, UGC, at the University of Poona*].

A day at the Open University

(*Continued from page 374*)

not mere formal advice on assignments. The teacher-student ratio is about 1 to 50, and the tutor-student ratio is 1 to 25. At the headquarters, each faculty consists of a Dean, Head of Department, Senior lecturers and lecturers. The Dean of Science is a tenured person, whereas other Deans are elected by their colleagues for a period ranging from three to five years. The University also engages consultants from other universities and countries for its programmes. Its continuing education department runs mini-courses, book-shop courses for ageing persons, for the handicapped, courses on parents, health visitors, courses on conflict in family, violence in family, and so on. There is an interesting short package-course concerned with child abuse. Such courses often comprise lessons in Readers (books). Teachers package also contains these. Indeed, various courses are designed and started in order to meet specific needs and demands.

The Open University constitutes a singular experiment in distance teaching in the world. Its interesting components are : continuing education, non-varsity courses, short programmes helping to reach out. It, however, faces some problems at the moment. At times its material is used as conventional University. It can't build something like conventional Varsities because its clientele had at one time rejected education. The production of material, which is not entirely an open process, imposes restrictions and stress on the academicians. They have sometimes to surrender a lot of academic freedom. The University Grants Committee funds it, but itself it can't make any profit. In science subjects the investment is quite heavy. As there is no time-limit to complete a degree course, many students prevent others from entering into these courses. We, however, feel that the Open Varsity, with its vast infrastructure and strong educational planning, will tide over such initial difficulties and serve as an example in distance teaching all over the world. □

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Campus News

Tamil University

The first issue of the News Bulletin of the newly established Tamil University has just been published.

The university was formally inaugurated on September 15, 1981. The university will run comprehensive programmes for research in all aspects of Tamil culture. Five faculties with Departments of Sculpture, Painting, Music, Drama, Palm Leaf Manuscripts, Rare Ancient Books, Epigraphy, Tamil Studies in Foreign Countries, Translation, Compilation, Literature, Linguistics, Siddha Medicine, Ancient Science Industries and Architecture have been established. The university proposes to establish contacts with researchers on Tamilology in various countries. The University Vice-Chancellor has made an appeal to the Tamilians living abroad to get in touch with the university.

Amongst the major objectives of the Tamil University are: (i) to facilitate and regulate research in the fields like Art, Culture, Music, Stage Plays, Painting, Sculpture, Architecture, Literature, Grammar, Linguistics, History, Religion, Philosophy, Geography, Astronomy, Siddha Medicine, etc. that are developed on the basis of Tamil language and to impart training to study Tamil; (ii) to translate books from other languages into Tamil and vice-versa; (iii) to transcribe and publish Palm Leaf manuscripts and rare ancient books; (iv) to search, locate and collect epigraphical records relating to Tamil language and Tamil culture and to publish them; (v) to trace the history of ancient scientific methods and to gauge their impact on modren scientific developments; (vi) to develop the Tamil language so that it can be a viable media in all educational fields.

The university has already received a letter from the Vice-Chancellor of the University of Jaffna, Sri Lanka, requesting for a preliminary meetings with the officials of this university and for setting up a joint body to work out details of a link-up between the two universities.

Kanpur University school of life sciences

The foundation stone for a new building for the proposed School of Life Sciences for the Kanpur University was laid by Shri C.P.N. Singh, Governor of Uttar Pradesh and Chancellor of the University on 3rd May, 1982. The building is expected to cost about Rs 18 lakhs. 50% of the cost will be borne by the University Grants Commission and the rest by the university and the State Government.

The university will soon offer MSc in Life Sciences which will consist of a number of core courses and optional courses. A candidate will be required to take optional courses relating to his specialisation in Botany and Zoology. On successful completion the candidate will be awarded the MSc degree in Life Sciences.

The establishment of this School is also expected to promote teaching and research in inter-disciplinary courses like microbiology, bio-chemistry, biophysics, genetics, etc.

AMU computer centre

A new powerful IVth generation DEC VAX 11/780 computer system has been installed at the Aligarh Muslim University.

The computer centre is offering one-year postgraduate diploma course in computer science, a diploma in electronic data processing and a diploma in computer programming. For the postgraduate dipolma course in computer science, 12 students are admitted each year of whom 10 receive UGC scholarship of Rs. 600 each per month.

The Electronics Commission has included this centre in the list of institutions for conducting computer science programmes.

The Board of Studies of Computer Science and the Faculty of Science of the University have recommended that a Department of Computer Science be established. Two new courses are then likely to be started, viz., Bachelor in Computer Science and Master in Computer Science in addition to the postgaduate diploma course.

Summer course in research methodology

The Department of Law of the University of Bombay has introduced a short-term summer course in research methodology for the benefit of students of that department. The course was recently inaugurated.

The convention was attended by Principals of Law Colleges, members of faculty, distinguished guests and research scholars registered in the department. In the working session that followed deliberations were held on importance of legal research, types of research and research methodology in the context of various branches of law. Nearly 50 PhD students and LLM students are participating in the course.

Plea for vocational training institutes

The Department of Physics of the Sri Venkateswara University organised the second three-month part-time vocational course on 'Photography and Slide Making' sponsored by the Government of Andhra Pradesh. The course was attended by twenty students, five of whom were unemployed graduates and the rest graduate students.

Training included colour film processing and printing. Forty marks were allotted for attendance in addition to marks for theory and practical.

Judging by the response the Department feels that there is a need to start in the State Vocational Training Institutes on the pattern of Industrial Training Institutes. Such Vocational Institutes would enable students to diversify after class X and thereby relieve pressure on universities and colleges.

Course on educational technology at PU

A 3-day course on 'Educational Technology' was organised recently by the Panjab University Centre for Continuing Education in collaboration with the Department of Education and Dean, Colleges Development Council. The main thrust of the 3-day course would be to translate goals into effective educational programmes.

Inaugurating the course, Prof R.C. Paul, Vice-Chancellor, Panjab University, said that education is a powerful instrument of national development. It was, therefore, obligatory on the part of those responsible for higher education to ensure that new knowledge is transmitted, old knowledge is interpreted and the potential of the gifted is identified and developed fully. He also called for radical changes in the existing system of education.

Major Jiwan Tewari, Coordinator, Continuing Education, pleaded for a change in teaching methods by adopting new educational technologies to improve the present system of education.

Universities and professional bodies

Inaugurating recently the annual convention of the Institution of Mechanical Engineers (India) at Madras, the Vice-Chancellor of the Perarignar Anna University of Technology, Dr V.C. Kulundaiswamy, called on the professional associations in Madras to form a consortium and enter into a partnership with his university for organising continuing education programmes. The Vice-Chancellor further observed that modern syllabi in universities were far better, the laboratories in universities were much better equipped and even the teachers were better prepared.

Linguistic structure of Sanskrit drama

Under the auspices of the Department of Sanskrit, Ranchi University, a three day seminar on the Linguistic Structure of Sanskrit Drama was held from 24 to 26 March 1982. The seminar was divided into six sessions including the inaugural and valedictory sessions. The subjects of discussion in the seminar were divided into two groups--theoretical and applied. In the theoretical group the discussion centred round the principles involved in the study of the linguistic structure of drama such as Rasa, dialogue, plot, etc. In the applied group the salient features of the dramatic language of important Sanskrit playwrights like Bhasa, Kalidasa, Shudraka, Simhasa etc. were discussed. In all twenty six papers were presented in the seminar. Some of the eminent scholars who participated in the seminar included Dr B.S. Kumar of Bhagalpur University, Dr V. Banerjee of Santiniketan and Dr G.S. Kantawala of M.S. University, Baroda. It is proposed to publish the papers in a book form.

Financed entirely by the university, the seminar was the first of its kind organised in Bihar.

Andhra Pradesh proposals

According to some statements recently made by the Education Minister of Andhra Pradesh, Mr K. Keshava Rao, the State Government will soon finalise the draft of a White Paper outlining a new Education Plan for the State.

A calendar would also be prepared which would specify the programme to be followed by universities and colleges in respect of academic matters beginning from the date of admission of a student till the date of publication of results.

New MBA course

The School of Business Management and Administration to be established by the Bharathidasan University, it is believed, will break new ground. The special committee constituted by the university to evolve a project report on the School of Business Management and Administration is reported to have finalised the contents of the MBA course by incorporating the Japanese culture of business management. The committee, it is also reported, has recommended a tie-up with the Toyoto University in Japan.

The proposed School would specialise in industrial management with special orientation in production and project management. The School is expected to have an intake of 100 and is expected to start functioning by July/August this year.

Rubber technology centre at IIT, Kharagpur

The Indian Institute of Technology, Kharagpur, has set up a Rubber Technology Centre. M.Tech. course in rubber technology was started by the Institute last year.

The Indian rubber industry and the government laboratories dealing with rubber are collaborating with the IIT. The IIT has also secured a grant of Rs. 22 lakhs from the Department of Science & Technology for a project on the utilisation of used rubber using cryogenic grinding techniques.

Two new courses in REC

It is reported that with effect from this academic year the Regional Engineering College, Tiruchi, would be offering two more courses in engineering--one in Computer Engineering and the other in Construction Technology. This will bring the total number of degree courses being offered at the REC to 10.

Centre for oriental studies at Mysore

With the Oriental Research Institute--a part of the Mysore

University—as a nucleus, the State Government of Karnataka is proposing to set up shortly a Centre for Advanced Oriental Studies and Research at Mysore.

Futurology convention

Jointly organised by the Jawaharlal Nehru Technological University and the Indian Council of Management and Future, Hyderabad Chapter, a 3-day convention on futurology recommended inclusion of futurology in the school and college curricula.

The convention also recommended setting up of an open university in each state and for increasing facilities in continuing education.

Silver Jubilee of IKSVV

The Indira Kala Sangit Vishwa Vidyalaya is the only university of its kind in the country devoted entirely to music and fine arts. The university is celebrating its silver jebilee this year.

The university was inaugurated in 1956. As part of its silver jubilee celebrations the university proposes to organise national and international seminar on music and fine arts. It also proposes to bring out books on Bharata Natya Shastra and Bharata Bhashyam among other subjects.

The university has institutions affiliated to it at New Delhi, Calcutta and Ajmer. Over 6,000 students are receiving education at the various branches of music and fine arts and about 50 are registered for a doctorate degree.

New courses at Annamalai Varsity

The Vice-Chancellor, Mr S.V. Chittibabu, announced recently that two post-graduate diploma courses—in Gandhian thought and Ramalingar's philosophy—would be started from the next academic year, followed by a few more in other faculties.

A part-time evening post-graduate course in physical education (M.P.Ed) would also be offered.

The University would execute a Rs. 7.5 lakhs scheme of the Tamil Nadu Government to bring out a commemoration volume on Poet Bharati comprising articles by eminent Indian and foreign scholars.

A guidance and counselling cell for students manned by a senior faculty member, to establish rapport among teachers, students and the administration, to help redress students' grievances and to ensure peace and a studious atmosphere on the campus would also be opened.

Madurai Varsity project on enzyme

The Madurai Kamaraj University is all set for manufacturing using indigenous technology, an enzyme which will be of immense use to industries. In another six months Indian-made enzymes should be out in the market.

At present this enzyme is imported.

The University had been selected as the centre for research and training in genetic engineering.

Rural Engineering course at JNTU

A four-year Bachelor's degree course in Rural Engineering is likely to be instituted at the Jawaharlal Nehru Technological University, Warangal. This course is expected to help in evolving a suitable technology for rural development.

News from Agril. Varsities

Lab to land workshop

A 2-day All-India 'Lab to Land' Workshop was held at the Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, recently. This was the second All-India 'Lab to Land' workshop. The workshop was organised under the joint auspices of the Indian Council of Agricultural Research and the JNKVV. About 100 delegates from various agricultural universities and other institutions attended the workshop.

As pointed out by Prof. S.V. Arya, Vice-Chancellor of the university in his welcome address, the philosophy of the 'Lab to Land' programme was to reach the poorest of the poor farmers. This programme was started in June 1979 for a period of three years. It is being extended by a further period of two years. In the first phase about 50,000 families have been covered. In the second phase 25,000 more families will be covered.

The workshop was inaugurated by Shri Arjun Singh, Chief Minister of Madhya Pradesh.

Research into Indian Mustard in Australia

Indian mustard could become a major crop in Australia if research at the Commonwealth Scientific and Industrial Research Organisation's Division of Plant Industry is successful.

Scientists believe their work could result in a doubling of the area suitable for oilseed cultivation.

They are working on a variety of mustard that is suitable for the large vegetable oil market.

CSIRO's Dr John Kirk said Indian mustard had advantages over the currrently grown Brassica oilseed crops, rape and turnip rape.

The most important of these is Indian mustard's resistance to blackleg, a fungus disease which has caused severe losses in the rapeseed crop in the past.

Indian mustard seed is also less prone to shattering and is significantly drought resistant, which could mean the expansion of oilseed growing into drier areas with reasonably adequate winter rain. [*Courtesy:* **Australian Information Service.**]

ICAR's scheme for scheduled castes

The Punjab Agricultural University has launched a new scheme in the form of a pilot project to be implemented at a cost of Rs. 6 lakhs identifying programmes which can be usefully taken up by the economically backward classes.

The programmes include training in vegetable and fruit growing, raising seedling nurseries, processing of fruits and vegetables and appropriate use of community land etc.

A scientist of the University will be in charge of this project. Similar projects have been assigned to several other agricultural universities like Haryana, Himachal Pradesh and 13 more in other States by the Indian Council of Agricultural Research. These projects are to be completed in the remaining three years of the Sixth Five Year Plan.

News from Abroad

Australian research on oil recycling

Australian university researcrers have developed a system for the economic recycling of waste lubricating oil. Two chemical engineers from Monash University in Melbourne, Associate Professor John Agnew and research assistant Mrs. Viyada Tirtaatmadja, have taken out patents on a system using a mixture of an organic solvent and a small amount of an aqueous electrolyte to "totally reprocess waste oil" by removing suspended particles.

"There has been a staggering amount of overseas research on this problem," Professor Agnew said. "We eventually found a particular solvent combination which works extremely well in causing flocculation of the very five particles of contaminant, including lead. We can obtain a high-yield product suitable for blending into fuel oils at high concentration, or alternatively refine it further to moke it suitable for blending with lubricating oil. Materials used are cheap and readily available.

[*Courtesy*: **Australian Information Service.**]

Cyprus students abroad

According to a recent report 45 per cent of all secondary school leavers in Cyprus proceeded to higher studies. Cyprus has no university of its own yet.

Cyprus had, according to this report, more than 12,000 students attending universities and other higher educational institutions abroad during the academic year 1979-80. Thirty-eight per cent of these were females. Most of the students were in Greece (6,603), the United Kingdom (1,769) and France (1,122). The remainder were in other countries in Europe, USA and Canada.

[*Courtesy*: **Cyprus Bulletin]**

Ranchi University youth festival

A 3-day youth festival was organised recently by the Ranchi University at the J.J. College, Jhumri Tilaiya. Organised after a lapse of several years, over 500 students including about 150 girl students from the entire Chhota Nagpur plateau, participated in the festival. The festival had 21 items divided into seven groups.

A unique feature of this year's festival was the introduction of debates in tribal languages such as Nagpuria, Kurukh, Mundari, Ho, Santhal and Kurmali besides Maithili.

The festival was inaugurated by Dr. K.C. Bose, Pro-Vice-Chancellor. Dr. A.K. Dhan, Vice-Chancellor, presided over the closing function and gave away the prizes.

IX ASIAN GAMES

Foreign coaches

In preparation for the Asian Games to be held at Delhi, 23 foreign coaches will be employed for training Indian sportsmen in various disciplines. Already 11 such coaches have come and completed their respective training programmes. A sum of approximately Rs. 30 lakhs will be spent on these foreign coaches.

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library Science

1. Sharma, Om Prakash. Library Service to physically handicapped persons in India after 1947: A study. Panjab University. Prof. Jagdosh S. Sharma, Librarian, Panjab University Library. Chandigarh.

Psychology

1. Agrawal, Madhav Prasad. Role of cognitive strategies in motor short term memory of blind and sighted subjects. University of Saugar. Dr A.K. Purohit.
2. Jain, Archna. Role of imagery in memory. University of Saugar. Dr. A.K. Purohit.
3. Mahmud Ali. Study on disintegration among tribal communities of Madhya Pradesh, resulting from location of industrial complexes in the midst of their habitats. University of Saugar. Dr. R.S. Bali & Prof. H.S. Asthna.
4. Misra, Anjli. Bundelkhand kshetra mein isvi 17vin shati kee sanskriti ka anusheelan. University of Saugar. Dr R. Choubay.
5. Rai, Shree. The influence of season of birth on the formation of dermatoglyphic characteristics: A study among the Kalars of Madhya Pradesh. University of Saugar. Dr Ramesh Chaube.
6. Rattan, Neelam. Executive effectiveness in relation to personality, self-perception, values and achievement motivation. Panjab University. Dr J. Mohan, Department of Psychology, Panjab University, Chandigarh.
7. Saraf, Manju. A sociological study of the emerging social consciousness towards the diabled: Performance and promises. University of Saugar. Dr S. Saraf.

Sociology

1. Tripathi, Asha. Structural bases of entrepreneurship development in Uttar Pradesh. Panjab University. Dr K.L. Sharma, Department of Sociology, Panjab University, Chandigarh.

Social Anthropology

1. Rajaure, Drone Prasad. Dynamics of change among the Tharus of Nepal. University of Delhi. Prof. J.D. Mehra, Department of Anthropology, University of Delhi, Delhi.

Political Science

1. Channa, Namrata. Voting and political orientations of women in the Indian electorate. Maharshi Dayanand University. Dr. D.S. Chaudhary, Reader, Department of Political Science, Maharshi Dayanand University, Rohtak.

Economics

1. Chauhan, Neeta. Institutional changes in rural economy of Malwa Region, Madhya Pradesh. University of Indore. Dr. M.V. Kapde, Reader, Department of Economics, University of Indore, Indore.
2. Nadkarni, Shibani Chandrashekhar. Economics of chemical industry in Madhya Pradesh. University of Indore. Dr. V.D. Nagar, Head, Department of Economics, University of Indore. Indore.
3. Rai, Rita Lalbehari. Expenditure on research and development, technological innovation and its diffusion in Indian chemical industry. M.S. University of Baroda. Dr. M.M. Dadi.

Law

1. Parikh, Suresh Chandra Navaital. Right to life and personal liberty. M.S. University of Baroda.
2. Sharma, Bhagat Ram. Dimensions of socio-economic justice in directive principles of state policy under the Indian constitution. Himachal Pradesh University. Dr. Chandar Pal Sheeran.

Public Administration

1. Goel, Madan Mohan. Administration of electricity supply at circle level in Haryana. Panjab University. Dr. S.L. Goel, Department of Public Administration, Directorate of Correspondence Courses, Panjab University, Chandigarh.
2. Kirpa Ram. Administration of agriculture credit cooperatives: Case study of Haryana State. Panjab University. Dr. S.L. Goel, Department of Public Administration, Directorate of Correspondence Courses, Panjab University, Chandigarh.

Education

1. Chomcheun, Thongleau. A study of non-formal vocational education programme in the educational region 5 of Thailand. M.S. University of Baroda. Dr. G.R.R. Sudame.

Commerce

1. Mishra. B.P. Madhya Pradesh mein antrakshetriya arthik vishamatayen. University of Indore. Dr. R.P. Saxena, 16, Vishnupuri Colony, Indore.
2. Shreshtha, Rajni. Industrial estates in Nepal. M.S. University of Baroda. Prof. G.C. Beri.

Home Science

1. Mital, Neeru Vimal. Maternal nutrition and food supplementation studies. M.S. University of Baroda. Prof. (Mrs.) Tara Gopaldas.
2. Sultana, Feroza. A study of rural women labour force in development and its impact on various aspects of family living in district of Barisal, Bangladesh. M.S. University of Baroda. Dr. (Mrs.) Kamala Srinivasan.

HUMANITIES

Philosophy

1. Gupta, Yogesh Chandra. The nature of ethical reasoning with special reference to Stephen Edelston Toulmin. Panjab University. Dr. (Mrs.) Veena Kapoor, Department of Philosophy, Panjab University, Chandigarh.
2. Jaswant Singh. Guru Nanak's and Bhakt Kabir's concept of man: A comparative study. Panjab University. Prof. Harnam Singh Shah, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.
3. Sulekha, A.K. Nature and destiny of man in the philosophy of Sri Aurobindo. University of Kerala. Shri K. Saratchandran, Division of Philosophy, University of Kerala, Kariavattom.
4. Sreekumaran Nair, M. The social philosophy of Swami Vivekananda. University of Kerala. Dr. K. Saratchandran, Division of Philosophy, University of Kerala, Kariavattom.

Language and Literature

Sanskrit

1. Chaudhary, Raj Bala. Vishvamitra's contribution to vedic culture and epical mythology: A critical study. Maharshi Dayanand University. Dr. Jai Dev Vidyalankar, Head, Department of Sanskrit, Maharshi Dayanand University, Rohtak.
2. Rawal, Pragna Premshanker. A study of the elements of Ayurveda in the Atharvaveda. M.S. University of Baroda. Prof. S.G. Kantawala.
3. Sharma, Duni Chander. A critical study of Shivasanhita. Panjab University. Dr. Dhan Raj Sharma, Lecturer, Department of Sanskrit, Panjab University, Chandigarh.

Hindi

1. Malaviya, Shashibala. Hindi natya mein rajnaitik tatva, 1900-1971. M.S. University of Baroda. Prof. M.G. Gupta.
2. Sumitra [illegible] Maharshi Da[illegible] Department [illegible] Rohtak.

Marathi

1. Patil, Usha Mangesh. Marathi pauranic natakanteel nayakanchya vyaktitivcha chiktisik abhyas. Shivaji University. Dr. S.G. Yadav, Department of Marathi, Vivekanand College, Kolhapur.

Gujarati

1. Desai, Rekha Narendra. Techniques employed in the short stories of Jayant Khatri, Jayanti Dalal. Chunilal Madiya, Gulabdas Broker and Suresh Joshi: A comparative study. M.S. University of Baroda. Dr. H.M. Trivedi.

Malayalam

1. Harigovindan, V.M. Heroines in Manipravala literature: A study. University of Kerala. Dr. K. Appukuttan Nair, Oriental Research Institute and Manuscripts Library, Kariavattom.

2. Warrier, K. Rama. Malayalam script: The structure and development. University of Kerala. Prof. G.K. Panikkar Department of Linguistics, University of Kerala, Kariavattom.

Geography

1. Chandravanshi, Balram Prasad. A demographic situation in the class I cities of Madhya Pradesh. University of Saugar. Dr. R.S. Dubey.

2. Jain, Kailash Chand. Spatial organization of agriculture in the environs of Sagar city (M.P.). University of Saugar. Dr. S.K. Sharma.

3. Jain, Rekha. Food crop productivity in Madhya Pradesh. University of Saugar. Dr. R.S. Dubey.

4. Sayed, Zaynabsultana. Rural market centres in the tribal area of the Dangs District. M.S. University of Baroda. Dr (Mrs.) V.A. Janaki.

5. Sinha, Braj Raj Kumar. Human resource utilization in Dhanarua Block, Patna Dist. (Bihar). M.S. University of Baroda. Prof. R.N.P. Sinha.

History

1. Awasthi, Anju. Prachin Bharatiya parivar mein putri kee sthiti ka alochnatmak adhyayan. University of Saugar. Dr. S.K. Namdev, Govt. Home Science College, Hoshangabad.

2. Choudhary, Daya Nand. A history of the Nagas of Bastar. University of Saugar. Dr. V.D. Jha.

3. Dikshit, Virendra Kumar. Archaeology of Dasarna region. University of Saugar. Dr. Shyam Kumar Pandey.

4. Gill, Birgood. Trade in the Punjab: A critical study of its internal and external dimensions, 1849-1900. Panjab University. Dr J.S. Dhanki, Department of History, Panjab University, Chandigarh.

5. Mansoori, Rias Ahmed. Study of ancient art of Seoni District. University of Saugar. Dr. S.K. Namdev, Govt. Home Science College, Hoshangabad.

6. Saraf, Jyoti. Guptkal mein nari kee sthiti ka adhyayan. University of Saugar. Dr. Sudhakar Pandey.

7. Shrimalia, S.R. Archaeology of aquatic constructions of Mewar. M.S. University of Baroda. Prof. R.N. Mehta.

8. Singram, Leela. Swadheenta andolan mein Madhya Pradesh ke harijanon tatha adivasiyon kee bhumika 1920-1947. University of Saugar. Dr. B.B. Srivastava.

9. Tiwari, Vishveshwar Dayal. Sagar zile ka puratatv. University of Saugar. Dr. V.D. Jha.

10. Tyagi, Gajinder Singh. Raisain kshetra kee shailgraheen chitrakala ka adhyayan. University of Saugar. Dr. Shyam Kumar Pandey.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Dheer, Jaswant Rai. Protein synthesis inhibition and memory. Kurukshetra University.

2. Helode, Ramchandra Dhondibaji. Retroactive interference as a function of personality dimensions. Nagpur University.

3. Sutradhar, Pankaj Kumar. Socially disadvantaged and advantaged children: A psychological study of their relative academic achievements. University of Calcutta.

Sociology

1. Chaudhary, Meera. Factors affecting the percolation of benefits of technology in agricultural development. Haryana Agricultural University.

2. Tomar, Lakshmi. Chambal ghati mein atam smarpit dasiyon dwara peerit privaron ka samaj shastriya adhyayan: Bhind evam Morena Zilon ke sandarbh mein. Jiwaji University.

Political Science

1. Bhattacharya, Gouri. Political and social ideas of Mahatma Gandhi: A critique. Gauhati University.

2. Bhattacharyya, Banikantha. Tripura administration: The era of modernization 1870-1972. University of Calcutta.

3. Haridwar Singh. Democratic orientation of students in India: A study in political socialization. Magadh University.

4. Ishwar Singh. Parliamentary privileges in India. Kurukshetra University.

5. Khattri, Vipla. Bharatiya pradhan mantri ka paddh 1964-77. University of Saugar.

6. Patnaik, Laxmi Kanta. Input and output components of decentralisation process with special reference to Orissa. Berhampur University.

7. Pratap Narayan. Personnel system in the Patna Municipal Corporation: A case study. Magadh University.

8. Roy, Gandhijee. The non-aligned diplomacy of Mrs. Indira Gandhi. Magadh University.

9. Sahoo, S.C. District administration in Orissa with special reference to Balasore District. Utkal University.

10. Sarma, Amulya Chandra. A study of Ahom System of government with special reference to public personnel administration. Gauhati University.

11. Sharma, Malti Rani. Administration of Pusthi Marg. University of Udaipur.

12. Sinha, Gayatri. Kamandak kee rajnaitik dharna. University of Bihar.

13. Subbagiri, S. Yadav Reddy. S Ananth Reddy. Communalism in Indian politics since 1947. Marathwada University.

Economics

1. Acharya, Gurusaday. Price changes and supply response for jute and rice. Visva-Bharati.

2. Bhardwaj, Kamal Krishana. Some economic aspects of tractor cultivation in Haryana. Kurukshetra University.

3. Chakrabarti, Baidyanath. A study of corporate income taxation in India. Visva-Bharati.

4. Challaped kasaiah. Federal state fiscal relations in India, 1961-62 to 1976-77. Andhra University.

5. Chhikara, Om Parkash. Optimization of land and water resources in semiarid tropics (S.A.T.) farms of Hissar District in Haryana. Haryana Agricultural University.

6. Pant, J.C. Resource mobilisation from agricultural sector in Uttar Pradesh since 1951. Kumaun University.

7. Pant, Sharad. Growth of entrepreneurship in Kumaun since 1951. Kumaun University.

8. Sahu, Nirmal Chandra. The forest economy of Orissa in *the context of the socio-economic development of the state.* Berhampur University.

9. Saxena, K.K. An input-output model for registered small scale industries in Rajasthan. University of Udaipur.

10. Sharma, Savitri. Institutional agencies and agricultural development: A case study of the Champaran Region. University of Bihar.

11. Shri Bhagwan. Planning theories and techniques in India: A critique. Kurukshetra University.

12. Singh, Raj Ballabh Prasad. Land development bank and its impact on growth of agriculture in Bihar. Magadh University.

Law

1. Ranbir Singh. Socio-legal implications of constitutional protections given to the minorities under the Indian constitution. Kurukshetra University.

Military Science

1. Sharma, Arvind Kumar. Raja Chhattarsal Bundela kee yudh sthal ko den. Jiwaji University.

Education

1. Amrit Kaur. A critical study of the educational philosophy of the Sikh Gurus. Punjabi University.

2. Bhattacharyya, Anima. Diagnosis and prevention of the learning disabilities of primary school students in arithmatic. University of Calcutta.

3. Das, Namita. Some behaviour-problems of the secondary school students of the district of Burdwan and their causes. Visva-Bharati.

4. Hari Prakash. Mental health as a correlate of intelligence, education, academic achievement and socio-economic status. University of Jammu.

5. Pant, S.C. Impact of education on the attitudes, beliefs and behaviour of muria school-going children of Bastar. Bhopal University.

6. Kaul, Moti Lal. Elementary education in rural Kashmir. Meerut University.

7. Singh, Dev Raj. A study of role expectations, job satisfaction and aspiration level of the Block Education Officers of Haryana. Kurukshetra University.

8. Vishiesh Kumari. A critical study of education philosophy of Krishnamurti. University of Jammu.

Commerce

1. Appa Rao, Balla. Small enterprise promotion in Andhra Pradesh: Role of Andhra Pradesh State Financial Corporation. Andhra University.

2. Garg, Sharat Kumar. Personnel management in the public sector: A case study of Bharat Heavy Electricals Limited, Hardwar. Meerut University.

3. Jain, Satyendra Kumar. Role of Industrial Development Bank of India in the industrial finance of India. Meerut University.

4. Krishna Murthy, G. Management of co-operative credit *in Andhra Pradesh. Kakatiya University.*

5. Narayanan, Sivaraman Vittal. Management of state financial corporations with special reference to U.P. Financial Corporation. Meerut University.

6. Ram Kumar. A study of cost administration of Saugar factories with special reference to Haryana and Punjab. Kurukshetra University.

7. Sharma, Megh Nath. Problems and prospects of growth of small-scale industries in Haryana. Kurukshetra University.

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9. Sharma, Suresh Datt. Marketing practices in textile industry in India with special reference to National Textile Corporation. Meerut University.

10. Singh, Braj Kishore. The role of co-operative credit movement in agricultural development of Bihar with special reference to Chotanagpur. Magadh University.

11. Singh, Ram Meher. India's economic relations with the U.S.S.R. Kurukshetra University.

12. Thakur, Anil Chandra. Role of cooperatives as an instrument of socio-economic progress in Assam: A case study of the district of Sibsagar. Gauhati University.

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Linguistics

1. Ambekar, Kisorchandra Purushottam. A linguistic study of Raj-Gandi in Vidarbha. Nagpur University.

2. Chervela Nirmala. First language (Telugu) development in chldren: Short descriptive study. Osmania University.

3. Jha, Mallika. Pratham rashtrakavi ke kavya kee shabdsampda ka bhasha vishleshan. Ravishankar University.

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English

1. Ghanshyam Prasad. R.K. Narayan, the novelist. Nagpur University.

2. Nemade, Bhagvat Vana. The influence of English on 19th century Marathi prose style. Marathwada University.

3. Singh, Chakradhar Prasad. The quest of faith: A study of Edward Albee's plays. Magadh University.

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1. Deo, Narendra. Meghdoot kee prampra mein rachit adhunik sandesh kavyon ka anusheelan. Ravishankar University.

2. Dimri, Rajendra Prasad. Garhwal sanskrit vidushan kramkand grantheshu sanskararan smalochnatmak adhyayan. Garhwal University.

3. Jain Sanmat Kumar. A critical study of Sarwarth Siddhi of Acharya Pujyapad. Kurukshetra University.

4. Joshi, Vishal Mani. Mahabharat adi parv evam tadantragat vishisht akhyanon ka vivechnatmak adhyayan. Garhwal University.

5. Kanhe, Kumud. Bhavbhooti kee bhasha ka arthtatvik anusheelan. Ravishankar University.

6. Laxmi Narain. Candraprabhacarita by Viranandi: A critical study. Kurukshetra University.

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9. Sharda, Kapila. Mandar manjari ka samikshatmak adhyayan. Kurukshetra University.

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1. Biswas. Mirabai. A critical study on the Buddhacarita. University of Calcutta.

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1. Dilgeer, Harjinder Singh. Master Tara Singh's contribution to Panjabi literature. Panjab University.

2. Jaspal Kaur. Heer katha vich istari-purush sambandhan da chitran. Panjab University.

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2. Chhabra, Nirmala. Premchand kee kahaniyon kee samajik chetna. University of Calcutta.

3. Duni Chand Prasad sahitya mein prakriti. Kurukshetra University.

4. Garg, Neera. Adhunik Hindi acharyon kee ras chinta. Kurukshetra University.

5. Gore, Balbhim Hanmantrao. Hindi adhyayan: Swarup evam samasyaen Marathwada Kshetra ke sandarbh mein. Marathwada University.

6. Hari Mohan. Adhunik Hindi kavya mein prayukt kavi prisidhion ka vaigyanik evam saundarya shastriya vishleshan. D. Litt. Garhwal University.

7. Misra, Padma. Sant Kabir aur Guru Nanak Dev kee vichardhara ka tulnatmak adhyayan. Garhwal University.

8. Pandey, Kusum Lata. Garhwal mein dev pujan. Garhwal University.

9. Pandey, Shashi Prabha. Hazari Prasad Dwivedi aur unka sahitya. Jiwaji University.

10. Rakesh, K.C. Swadheenta andolan aur Hindi natak, 1900 se 1940 tak. University of Delhi.

11. Satyanarayana. Dwivedi yugin Hindi kavya mein samajik chetna. Osmania University.

12. Seth, Sudarshan. Bhakti kalin kavya mein gram chetna. Panjab University.

13. Sharma, Bhagwat Swaroop. Sathottar nari kahanikar aur unka yug both. Kurukshetra University.

14. Sharma, Shekhar. Samkaleen samvedna ke sandarbh mein Hindi natakon ka adhyayan, 1950-75. Himachal Pradesh University.

15. Usha Rani. Punjab ke madhyakalin nirgun sant sahitye mein samajik chetna kewal gurbani ke sandarbh mein. Punjabi Univerity.

16. Vizialakshmi, Vadlammani. Swatantrayottar Hindi upanyason ke nari patron kee yug chetna. Andhra University.

17. Yadav, Subhash Chandra. Desh ka vibhajan aur Hindi upanyas. Jawaharlal Nehru University.

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1. Bera, Chandrasekhar. Fratyanta radher lokajiban-o-sahitya sanskritir baisistya. University of Calcutta.

2. Chakrabarti, Krishna. Prabade Bangali samajjiban. University of Calcutta.

3. Raychaudhuri, Parswanath. Barhu Chandidaser Sri Krishna kirtan kavyer punarmulyayan. University of Calcutta.

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1. Deka, Barada Kumar. Influence of Freudian psychology in post-war Assamese fiction. Gauhati University.

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2. Hiremath, Rajshekhar Gangadhar. A comprehensive study of all the aspects of complete literary works of V.V. Shirwadkar. Shivaji University.

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CLASSIFIED ADVERTISEMENTS

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

ADMINISTRATIVE OFFICE : 'RAJENDRA NAGAR' HYDERABAD-500030

Advertisement No. 2/82 **Dated : 22.5.1982**

Applications in the prescribed form are invited for the undermentioned posts. Completed application forms should reach the University on or before **21.6.1982.**

Subject	Professor cadre (Rs. 1500-2500)	Assoc. Prof. cadre (Rs. 1200-1900)	Asst. Prof. cadre (Rs. 700-1600)
A. Faculty of Agriculture			
a. Assoc. Directors of Research (Agril.)	3	—	—
b. Plant Breeding	2	1	9
c. Agronomy	1	5	10
d. Entomology	1	5	10
e. Horticulture	2	6	1
f. Extension	2	5	3
g. Agril. Economics	2	6	2
h. Soil Science & Agril. Chemistry	5	3	10
i. Agril. Engineering	1	7	9
j. Plant Pathology	—	—	8
k. Plant Physiology	—	4	7
l. Statistics	1	1	6
B. Faculty of Veterinary Science			
a. Anatomy	—	1	—
b. Animal Reproduction & Gynaecology	—	—	2
c. Animal Science	—	4	1
d. Genetics & Animal Breeding	—	—	2
e. Meat Science & Technology	—	1	1
f. Dairy Science	—	—	3
g. Medicine	1	—	1
h. Microbiology	—	—	1
i. Pharmacology	—	—	1
j. Physiology	1	—	1
k. Surgery	1	—	1
l. Parasitology	—	1	—
m. Scientist—IRDC Unit (Pathology/Medicine Microbiology/Parasitology Gynaecology)	—	1	—
n. Poultry Science	—	—	4
o. Asst. Research Officer (Asst. Prof. cadre) in Fisheries	—	—	2
p. Research Officer (A.H.) Chintaladevi (Animal Science, Dairy Science)	—	1	—
C. Faculty of Home Science			
a. Foods & Nutrition	—	2	1
b. Home Management	1	1	2
c. Child Development	1	1	2

The Number of posts indicated above are tentative. Recruitment will be made against the actual number of vacancies available on the date of interview. The number of vacancies in the cadre of Associate Professor & Asst. Professor are expected to be slightly more than the numbers indicated above.

The minimum qualifications prescribed for the posts in Assoc. Professor's cadre is a Ph. D., in the subject concerned or published papers in the same or related field equivalent to Ph.D. Candidates possessing the Master's degree and having published research papers which they feel are of Ph.D. standard will please send 4 sets of such papers on or before **10.6.82**, preferably along with the requisition for application form.

Applicants are required to appear for the interview at their own cost.

Full details regarding the qualifications prescribed for various posts, conditions of recruitment etc. and the application forms can be had from the University on payment of Rs. 10/- in person or through a crossed postal order. A self addressed and stamped (**Rs. 2.00**) cover of the size of 35 cm x 15cm may also be sent.

The covers containing the requisitions for application forms must be superscribed "Requisition for Application Form" and addressed to Sri V. Veerraju, Deputy Registrar, A.P. Agricultural University, Rajendranagar, Hyderabad-500030.

REGISTRAR

MEERUT UNIVERSITY

MEERUT

CORRIGENDUM

This is in partial modification of advertisement published in the University News—**May 1, 1982** issue inviting applications for the posts of Readers in Zoology, English, Political Science, Economics, History and Mathematics.

EXPLANATION advertised under minimum qualifications for the post of Reader be treated as deleted.

The term 'Impirical research' published under desirable specialization for the post of Reader in Political Science be read as 'Empirical Research.'

Last date for submission of applications has been extended upto **15th June, 1982.** Request for application form should reach the University latest by **9th June, 1982.**

Dr. Bholendra Singh
REGISTRAR

VIKRAM UNIVERSITY
UJJAIN

No. Admn./Estt./SST/82/32616
Dated: 22-3-1982

ADVERTISEMENT

Applications on the prescribed form, available from the University Office on payment of Rs. 10/- in cash or by M.O./I.P.O. payable to the Registrar, are invited for the following posts in the University Schools of Studies, Department of Library Science, Madhav College and Madhav Science College:

A. 1. **Professor one each** in School of Studies in Political Science, Economics, Chemistry, Mathematics, Zoology and Commerce.

Specialization:—Zoology—Fish and Fisheries (Compulsory).

Commerce—Management studies (desired).

2. **Readers one each** in Political Science, Economics, Chemistry, Mathematics and Statistics, Botany.

Specialization—Chemistry — Industrial Chemistry (compulsory).

Statistics — Computer sciences (compulsory).

3. **Lecturers one each** in Political Science, Zoology, Mathematics and 2 (Two) in Library Science—One of which purely temporary.

Specialization:—1) **Mathematics**—Astronomy (compulsory).

Zoology—Cytogenetics Parasitology/or Physiology (compulsory).

B. MADHAV COLLEGE, UJJAIN

1. **Professor—One each** in Urdu, Geography, Commerce and Law.
2. **Lecturers**—Four in Commerce and One in Law.

C. MADHAV VIGYAN MAHAVIDYALAYA, UJJAIN

Lecturer

One each in Geology, Statistics and Geography:

Pay-scale for 'A'

Professor

Rs. 1500-60-1800- 100-2000 -125/2-2500.

Reader

Rs. 1200-50-1300-60-1900.

Lecturer

Rs. 700-40-1100-50-1600.

Pay Scale For 'B & C'

Professor

Rs. 1200-50-1300-60-1900.

Lecturer

Rs. 700-40-1100-50-1300- Assessment-50-1600.

Qualifications

More or less as laid down by the University Grants Commission. The details of which are given in the annexture to the prescribed application form.

All appointments at 'A' will be on probation for two years in the first instance except on the posts indicated as temporary. In addition to Pay, the above scales carry dearness allowance, additional dearness allowance, at M.P. Government rates and the benefit of contributory provident fund (after confirmation) as per rules of the University in force from time to time. Higher start is possible to deserving candidates.

The posts in 'B & C' are temporary but likely to be continued.

Scheduled Castes and Scheduled Tribe candidates will be given preference, if found suitable.

Applications complete in all respect and accompanied with Crossed I.P.O. for **Rs.** 10/- payable to the Registrar, Vikram University Ujjain should reach the undersigned on or before **15.6.82** Scheduled castes and Scheduled Tribes candidates are not required to pay this fees if they submit a certificate to this effect from District Collector/Tehsildar of the concerning region. The envelope containing application form should be marked "Application for the post of Professor/Reader/Lecturer/Lecturer............". Separate application form is essential for each post.

Applications received after the last date or not on the prescribed form or without the prescribed fee will not be considered. Candidates already in service should apply through proper channel. Candidates called for interview will have to attend the same at their own cost.

The University reserves the right to fill-up or not to fill up any post advertised and/or to call only selected candidates for interview.

Note:—Those who have already applied in reponse to this advertisement need not apply again.

J.P. Singhal
REGISTRAR

ANNAMALAI UNIVERSITY

APPLICATIONS are invited for filling up the following teaching and non-teaching posts, in the prescribed form containable on payment of **Rs. 10/-** to the Registrar, Annamalai University, Annamalainagar 608 002 by cash/money order/postal order (not refundable). Completed application forms (with five additional copies) should reach the Registrar on or **before 12th June 1982**.

Sl. No.	Name of the post	Number of post
1.	Lecturer in Dental Surgery	8
2.	Junior Lecturer in Dental Surgery	6
3.	Lecturer in Anatomy	1
4.	Lecturer in Physiology	1
5.	Lecturer in Bio-Chemistry	1
6.	Lecturer in Pharmacology	2
7.	Lecturer in Microbiology	1
8.	Lecturer in Pathology	2
9.	Assistant Dental Surgeons (Non-Teaching)	1

Scale of Pay

Lecturer and Dental Surgeons

Rs. 700-40-1100-50-1600 plus usual allowances.

Junior Lecturers

Rs 500-20-700-25-900 plus usual allowances.

Qualifications

Lecturer in Dental Surgery

M.D.S. Degree from a recognised University. Past teaching experience is preferable.

Junior Lecturer in Dental Surgery

Minimum qualification

(A) B.D.S. Degree of a recognised University.

(B) Should have completed Dental House Surgeonship for a period of one year.

OR

Should have been engaged in private practice for 3 years.

Preferable

Past teaching experience.

Lecturer in Pathology

Minimum qualification

M.B.,B.S., with D.C.P. from a recognised University.

Preferable

M.D. in General Pathology.

For the Posts of Sl. Nos. 3 to 7

Minimum qualification

M.Sc. in the concerned subjects from a Medical Faculty of a recognised University.

Preferable

Ph.D. and/or teaching experience in Medical/or Dental College.

For Post No. 9

B.D.S. with minimum 5 years Clinical Experience.

A.R. Lakshmanan
REGISTRAR

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR-388 120
GUJARAT

Notification No.: EST/2 (1982-83)

Applications are invited in the prescribed forms available from the University office on payment of **Re. 1/-** in cash or by Indian Postal Order for the following posts so as to reach the undersigned on or before **15.6.1982**

Sr No.	Name of the Post	Scale of Pay
1.	**Professor each in:**	
	(i) Physics (Solid State Electronics, Quantum Electronics and Digital Electronics)	Rs. 1500-60-1800-100-2000-125/2-2500.
	(ii) Psychology	
	(iii) Bio-Systematics; and	
	(iv) Education	
2.	**Reader each in :**	Rs. 1200-50-1300-60-1600- Assessment-60-1900.
	(i) Psychology; and	
	(ii) Home Science (Foods & Nutrition)	
3.	**Lecturer each in :**	Rs. 700-40-1100-50-1300- Assessment-50-1600.
	(i) Psychology; and	
	(ii) Chemistry, (Analytical Chemistry)	
4.	**Senior Programmer**	Rs. 700-40-980-EB-40-1100-50-1200-EB-50-1300.

The details of the prescribed qualifications etc. will be supplied alongwith the application forms.

All the posts carry the benefits of Dearness Allowance, Provident Fund and Gratuity or Pension scheme as per rules of the University.

Preference will be given to the qualified candidates belonging to Scheduled Castes/Scheduled Tribes, Socially and Educationally and/or Economically backward Class.

R.C. Thakkar
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH

Advertisement No 3/82-83

Applications on the prescribed form are invited for the following posts -

Faculty of Medicine

1 Professors

Scale of Pay Rs 1500-60-1800-100-2000-125-2-2500 plus allowances

(i) Professor of Orthopaedic Surgery Deptt of Orthopaedics

Qualifications M S (Orthopaedics) M Ch (Orthopaedics) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

As Reader in Orthopaedics for four years in a Medical College

(ii) Professor of Gastroentrology (Plan post) Department of Medicine

Qualifications D M (Gastro-Entrology) M D in Medicine with 2 years special training in Gastro-Entrology FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

As Reader in Gastro Entrology for four years in a Medical College

(iii) Professor of Radiology Department of Radiology

Qualifications M D M S (Radiology) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

A Reader in Radiology for four years in a Medical College

2 Readers

Scale of Pay Rs 1200-50-1300-60-1900 plus allowances

(i) Reader in Radiology Department of Radiology

Qualifications M D M S (Radiology) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

As Lecturer in Radiology for five years in a Medical College

(ii) Reader in Opthalmology Department of Ophthalmology

Qualifications M S (Ophthalmology) M D (Ophth) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

As Lecturer in Ophthalmology for five years in a Medical College

(iii) Readers in E N T Deptt of Oto Rhino Laryngology

Qualifications M S (Oto Rhino-Laryngology) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

As Lecturer in Oto Rhino Laryngology for five years in a Medical College

Desirable

Published research papers Aptitude for Broncho-Oesophagology Rhinology and Laryngology

3 Lecturers

Scale of Pay Rs 700-40-1100-50-1600 plus allowances

(i) Lecturer in Anatomy Department of Anatomy

Qualifications I Essential

M S (Anatomy) MBBS with M Sc (Anatomy) Ph D (Medical Anatomy) D Sc (Medical Anatomy) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

Requisite recognised postgraduate qualification in the subject

II-Desirable Published work

Note The candidates who have already applied in response to advertisement No 38 80-81 need not apply again

(ii) Lecturers in Physiology (2 posts One each in Physiology and Biophysics) Department of Physiology

Qualifications I-Essential M D (Physiology) MBBS with M Sc (Physiology) Ph D (Medical Physiology) D Sc (Medical Physiology) FRCS (obtained prior to **11 11 978)**

Teaching Research Experience

Requisite recognised postgraduate qualification in the subject

II Desirable Experience in Reproductive Physiology Neuro Physiology

(iii) Lecturers in Opthalmology (3 posts One temporary but likely to become permanent and 2 temporary posts) Department of Ophthalmology

Qualifications

M S (Ophthalmology) M D (Ophthalmology) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

Requisite recognised postgraduate qualification in the subject

(iv) Lecturer in Radiology Department of Radiology

Qualifications

M D M S (Radiology) FRCS (obtained prior to **11 11 1978)**

Teaching Research Experience

Requisite recognised postgraduate qualification in the subject

(v) Lecturer in Paediatrics (Post Partum Scheme) Deptt of Obstetrics and Gynaecology (For the duration of the scheme)

(vi) Lecturer in Paediatrics Department of Paediatrics

Qualifications

M D (Paediatrics) FRCS (obtained prior to **11 11 1978) Teaching Research Experience** Requisite recognised post graduate qualification in the subject

(vii) Lecturer in Plastic Surgery Department of General Surgery

Qualifications M Ch (Plastic Surgery) FRCS (obtained prior to 11 11 1978)

Teaching Research Experience Requisite recognised postgraduate qualification in the subject

Faculty of Arts Science and Women s College

1 Readers

Scale of Pay Rs 1200-50-1300-60-1900 plus allowances

Readers in Botany (Two posts One permanent and one likely to become permanent) Department of Botany

Qualifications

- (a) A first or a high second class Master s degree in the subject of an Indian University or an equivalent foreign qualification
- (b) A research degree of a doctorate standard or published work of a high standard and

(c) Atleast five years experience of teaching post graduate classes and some experience of guiding research

2 Lecturers

Scale of pay Rs 700-40-1100-50-1600 plus allowances

- (i) Lecturers in Hindi Department of Hindi
- **(ii) Lecturer in Marathi, Department of Hindi**
- (iii) Lecturers in Zoology (temporary but likely to become permanent and temporary posts), Deptt of Zoology
- (iv) Lecturer in Physics Women s College
- (v) Lecturer in Home Science (temp) Women s College

Qualifications

I Essential

- (a) A Doctor s degree or research work of an equally high standard and
- (b) Consistently good academic record with first or high second class (B in the seven point scale) Master s degree in the relevant subject or an equivalent degree of a foreign University

  Having regard to the need for developing inter disciplinary programmes the degrees in (a) and (b) above may be in relevant subjects

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard it may relax any of the qualifications prescribed in (b) above

Provided further that if a candidate possessing a Doctor s degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory Organisation on the condition that he will have to obtain a Doctor s degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements

II Desirable For the post of Lecturers in Hindi

Strong knowledge of (1) Old texts (2) Indian Poetics (3) Linguistics

For the post of Lecturer in Marathi

M A degree in Hindi some teaching experience of degree classes

Note In case of post No (v) (Lecturer in Home Science) the qualification may be relaxed

Faculty of Engineering & Technology

1 Lecturers

Scale of Pay Rs 700-40-1100-50-1600 plus allowance

(i) Lecturer in Electronic Engg Section Women s Polytechnic

(ii) Lecturer in Civil Engg (temp) University Polytechnic

Qualifications

(a) Master s degree in appropriate field in Engg Technology

(b) Consistently good academic record with a Bachelor s degree in Engg Tech First class at Bachelor s degree and or Master s degree level

(c) One year s relevant professional experience outside academic research institution

Having regard to the requirements of emerging fields of Engineering and of developing inter-disciplinary programmes, the requirements of Engineering/Technology degrees may be waived *in the cases of otherwise* well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed *will* be required to obtain desired professional experience within a period of five years of his appointment, failing which he will not be able to earn future increments, until he fulfils this requirement.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees) on payment of **Rs. 2/-** in cash (to be deposited in the Cash Section', Finance Office AMU) or through an Indian Postal Order payable to the Finance Officer, AMU, either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **15th June, 1982**. Incomplete applications and those received late may not be considered.

REGISTRAR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

HUMAYUN NAGAR : HYDERABAD-500 028 ANDHRA PRADESH

NOTIFICATION

Applications are invited for the following Temporary Teaching posts in the Constituent Colleges of this University.

S. No.	Name of the post and Department
1.	Professor of Electrical Engineering
2.	Professor of Chemistry
3.	Professor of Mathematics
4.	Professor of Mechanical Engineering
5.	Assistant Professor in Civil Engineering
6.	Assistant Professor in Mechanical Engineering
7.	Assistant Professor in Electrical Engineering

(a) Scale of Pay

(1) **Professors**: Rs. 1500-60-1800-100-2000 Assessment-125/2-2500.

(2) **Assistant Professors**: Rs. 1200-50-1300-60-1900.

Note : All the posts carry D.A.; H.R.A. C.C.A.; etc. as per the State Government rules.

(b) Age limit as on 1.7.982.

(1) **Professors**: Not more than 45 years

(2) **Assistant Professors**: Not more than 35 years.

Note : *Age limit relaxable in case of* inservice candidates of J.N.T. University.

(c) Qualifications

Professors

(a) First Class Master's Degree in *the subject of specialisation with* consistently good academic record;

OR

Master's Degree in the relevant subject and a Doctorate Degree in *the appropriate* field;

OR

Master's Degree in the relevant subject and published work of a standard equivalent to Ph.D.

OR

Master's Degree in the relevant subject and Scientific and Technological work of a high quality inclusive of R & D work in an industry or a Scientific establishment.

(b) 10 *years of teaching experience* inclusive of guiding research.

Assistant Professors

(a) A First Class Master's Degree with consistently good Academic record or Ph.H.

(b) 5 years of teaching experience.

Application forms can be had from the Office of the Registrar, Jawaharlal Nehru Technological University, Hyderabad-500 028 on payment of **Rs. 5/-** through crossed Indian Postal Order dated not earlier than **12-5-1982** payable to the Registrar, Jawaharlal Nehru *Technological University*, Hyderabad-500 028 at Jawaharlal Nehru Technological University Post Office. Requisition for the supply of Application form may be made enclosing self-addressed envelope 30 x 10 cm. size with stamps worth **Rs. 2/-** (Rupees two only) duly affixed. Duly filled in applications together with a Crossed Demand Draft of **Rs 15/- (Rs. 3.00** in case of S.C./S.T. candidates) issued in favour of the Registrar, Jawaharlal Nehru Technological University, Hyderabad payable at State Bank of India, Humayunnagar, Hyderabad should reach the Registrar on or before 5.00 P.M. on **21-6-1982**.

Applications received after the due date *either in person or through post* will be rejected. Application of candidates in employment should be sent through their Employer. They may however send an advance copy which must be received in University Office on or before the due date.

REGISTRAR

JAMIA MILLIA ISLAMIA

JAMIA NAGAR, NEW DELHI-110025

Advt. No. 1/82-83.

Director, Centre of Adult and Continuing Education and Extension (Rs. 1500-2000).

Applications on the prescribed form which can be had from the Registrar's Office on any day (except Sunday and Holiday) between 10.00 a.m. and 12.00 Noon or by sending a self addressed and stamped (35 paise) envelope of 10 x 23 cms. are invited along with the croesed Indian Postal Order or Bank Draft of **Rs. 3/-** for the above post so as to reach the Registrar by 1.00 p.m. on **19-6.82**.

Ability to teach in Urdu and Hindi is desirable.

D.A., C.C.A., H.R.A., P.F., Gratuity, Pension and other benefits will be given according to Jamia rules.

Qualifications

(a) First or Second Class Master's Degree of an Indian University or an equivalent qualification of a foreign University in adult education/social sciences/social work.

(b) A research degree of the doctorate standard in any of the social sciences, education, adult education or on the basis of review of published research carried out.

(c) About ten years experience in programme planning, administration and teaching.

(d) Persons with experience in community development projects with emphasis on adult/non-formal education will be preferred.

Note : Conditions of experience and/or qualifications for the post may be relaxed in very special cases for very *experienced persons, if suitably qualified* candidates are not available, on the recommendation of the Selection Committee.

REGISTRAR

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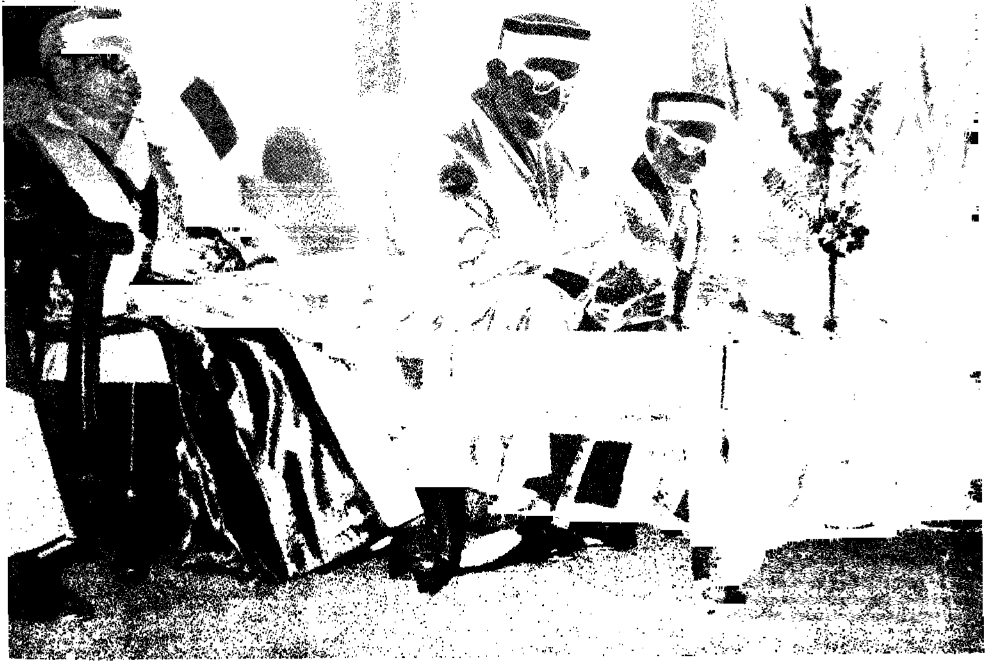
University

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JUNE 15, 1982



From Left to Right : Shri Pranab Mukherjee, Union Minister of Finance, Shri A.N. Banerji, Governor of Himachal Pradesh and Dr L.P. Sinha, Vice-Chancellor, at the convocation of Himachal Pradesh University.

RAVISHANKAR UNIVERSITY
RAIPUR

Employment Notification No. 2/82
Last date of Application 7th July, 1982

Applications are invited for appointment to the following posts in the University Teaching Departments:

Sl N. Name of Posts	Number of Posts	Specialisation
I. I. PROFESSORS		
(i) Psychology	One	
(ii) History	One	Modern Indian History.
II. READERS		
(i) Physics (temporary likely to continue)	One	
(ii) History	One	Modern Indian History.
(iii) Law	One	Constitution &/or Administrative Law.
(iv) Economics	One	Candidates with specialisation in Mathematical Economics/ Econometrics will be preferred
(v) Linguistics	One	
III. LECTURERS		
(i) Sociology	One	Inter disciplinary research work based on Sociological interpretation of Sanskrit work
(ii) Sociology (General)	One	
(iii) Law	One	Constitution &/or Administrative Law.
(iv) Chemistry (Temporary likely to continue)	One	
(v) Psychology	Two	
(vi) Linguistics	One	
(vii) Geography	One	
(viii) Physical Education	One	

2. Scales of Pay

Professor: Rs. 1500-60-1800-100-2000-125/2-2500/-

Reader: Rs. 1200-50-1300-60-1900/-

Lecturer: Rs. 700-40-1100-50-1600/-

3. The candidates who had applied for any of the posts mentioned above in response to our previous advertisements need not apply again for the same post. Their cases will be considered on the basis of earlier applications, if they are found eligible in terms of this advertisement. However they are directed to furnish full details on plain paper stating that they want to be considered for the said post and they will furnish data about additions to their qualifications etc

4. Qualifications for the Post of Professor (as on 7-7-1982)

An eminent scholar with published work of high standard actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

5. Qualifications for the Post of Reader (as on 7-7-1982)

Good academic record with a doctoral degree of equivalent published work. Evidence of being actively engaged in:

(i) Research or

(ii) Innovation in teaching methods. or

(iii) Production of teaching materials.

About five years' experience of teaching and/or research provided that atleast three of these years were as lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

6. Qualifications for the Post of Lecturer (as on 7-7-1982)

(a) A Doctor's degree or research work of an equally high standard and

(b) Consistently good academic record with 1st or high 2nd class (B in seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign university. Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects. The relevant subject for the interdisciplinary post in the Department of Sociology may be Sanskrit or Ancient Indian History.

Provided that if the selection committee is of the view that the research work of candidate as evident either from his thesis or from his published work is of very high standard it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

(i) For the purpose of determination high second class, the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken.

(ii) For determining consistently good academic record a candidate should either have an average 55% of the two examinations prior to Master's degree (irrespective of the marks obtained) in any of the two examinations) or 50% marks in each of the two examinations separately.

7. The requirement regarding minimum percentage of marks shall be relaxed upto 5% in the case of scheduled castes/scheduled tribe candidates. Fifteen percent of the posts in each department are reserved for the candidates belonging to scheduled castes and 18% for scheduled tribes candidates. If no candidate belonging to scheduled caste/tribes is found suitable for appointment candidate belonging to the general category will be considered.

8. General

(i) Contributory provident fund, dearness and other allowances and benefits are available as per University Rules. Higher initial salary in the scale may considered in case of exceptionally qualified and deserving candidates. (ii) Candidates in employment must submit their applications through proper channel Applicants called for interview will have to bear their own expenses (iii) The University reserves the right not to fill any post without assigning any reason therefor (iv) Applications should be submitted in seven copies on prescribed form. (v) Request for the prescribed application forms should be made to the Registrar by sending **Rs. 5/-** in cash or by crossed bank draft, together with a self-addressed envelope of 23 x 11 cm. size bearing postal stamp worth **Rs. 1.95** ps. for recorded delivery. (vi) Application must reach the Registrar's office on or before **7-7-1982**.

Dr. H.N. Shukla
REGISTRAR

UNIVERSITY NEWS

VOL. XX No. 12
JUNE 15 1982

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IN THIS ISSUE

Maharashtra Ordinances 394
Reasons behind the continuing crisis at Pantnagar 396
Agricultural Universities With International Assistance Usher Green Revolution 399

Convocation

Productivity and higher education 402
Needed reforms in higher education 403

Campus News

Panel to study open university in AP 406
Karnatak varsity rules for teacher's research 406
Rotating headship at KU 407
New members of UGC 407
New courses at Ranchi Varsity 408
Eligibility for degree course at Madras 408

Agriculture

Salinity problems in Australia 409
ICAR Post-harvest technology workshop 409
Farm students to work with farmers 409
Research in Progress 410
Theses of the Month 411
Additions to AIU Library 415
Classified Advertisements 417

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

Maharashtra Ordinances

Come examination season and there is tension in the air. Students and parents being tense is perhaps understandable. But what is not seen is the tension in the administrations of the various Boards and universities holding examinations. Many among them silently pray invoking His blessings for a smooth conduct of the examination! Many others put on a glum exterior or sport a cheerful disposition depending on one's personality. But all are tense. Why this tension ? Is not an examination a normal operation in the educational process ?

Not any more, it seems. Newspapers are rife with reports of boycots by students *and teachers* in different parts of the country. Reasons for the boycot by students may vary from 'out of course' questions to seeking a licence for copying ! One newspaper article lists the devices resorted to by students, including girls, for copying in the examination hall. The article makes interesting reading, but is depressing in the end.

But what has been causing concern which, thank God, is only a recent phenomenon, is the boycot of examination work by teachers and by administrative staff of universities. This year at least in two States teachers boycotted the examination work. The teachers no doubt have a point of view. So do the administrative staff. But the tactical move of these sections of university jeopardising the whole mammoth exercise of an annual examination for lakhs of students all over the State was answered by the State Government of Maharashtra in the form of two Ordinances. Excerpts from these Ordinances appear on the next page.

Had there been an ordinance issued by the Government of a State banning elections to various bodies in the universities, there would have been banner headlines and extensive coverage in the regional and national newspapers. The two ordinances of the Maharashtra Government did not receive that attention. The tendency on the part of newspapers to emphasise only news with a political angle is well known. But the question to ask is, "Has education system become irrelevant to society ?" If not why has it not received due attention ? There is news other than political and an ordinance for governing universities is as important as an ordinance covering any other sector of society's activities.

The two ordinances of the Maharashtra Government make copying in examination a cognizable, non-bailable offence. Likewise, examination work has been made compulsory duty for teachers and staff and refusal to do the work has been made a cognizable, non-bailable offence. As far as is known, this is the third State in India to make copying in examination a cognizable offence. That a State had to issue an ordinance to ensure a normal academic activity is unfortunate. It is not as if only one party is to be blamed, as already noticed. What is the remedy? It is easy enough to be platitudinous in such situations. At best the ordinance may help to tide over a critical phase. But is that the way our academic activity is to be run ? No one genuinely interested would agree to this.

The million dollar question can only be answered by those involved in the whole affair—neither side taking stands on prestige. A solution has to be found. Is there lurking a deplorable fall in ethical standards ? Is there a failure of reason ? Is this a symptom of a lack of leadership ? Whatever it is all sides have to examine, understand, yield and accept in a true sense whatever is agreed upon. Nobody loses. On the other hand the future is ensured to be bright and prosperous. This is why all of us are here and that is what all of us work for. Or, is it hypothetical ?

—Editor

Maharashtra Ordinances, 1982

Excerpts from the Maharashtra Educational Institutions Employees (Examination Duties) Ordinance, 1982.

Ordinance No. III

1...............

2................

(a) ....

(b) "Competent Officer", in the case of employees of the University or any college or recognised institution or any school imparting higher secondary education or any other persons employed for the purposes of any examinations, means the Vice-Chancellor of the University, the Registrar of the University, the Director of Education, any Joint Director of Education and any Deputy Director of Education and, in the case of employees of any of the colleges or recognised institutions or schools imparting higher secondary education or other educational institutions, includes the Principal or Head of the institution by whatever name called;

(c) ....

(d) ....

(e) "Refusal to work", in relation to any person to whom any work in connection with any examination has been assigned under this Ordinance, means his failure to attend at, or absence from, the place of work on a working day and during working hours, without obtaining permission of the authority competent to grant such permission or his refusal to do the work or any other conduct on his part, which results in or is likey to result in cessation or substantial retardation of the work, and the words "to refuse to do the work", with all their grammatical variations and cognate expressions shall be construed accordingly;

(f) ....

3. *Duty of employees of educational institutions to do examination work and punishment for contravention*—(1) Notwithstanding anything contained in any other law for the time being in force or in any contract or in any judgement, decree or order of any Court or Tribunal, it shall be one of the statutory duties of every officer, teacher, member of non-teaching staff and other employees of every educational institution, to do any work assigned to him, in connection with any examination, by any Competent Officer, by general or special order, and to comply with such directions as may be issued by the Competent Officer, from time to time, in connection with that work.

(2) Any order made under sub-section (1) shall be published in such manner as the Competent Officer considers best calculated to bring it to the notice of the persons concerned.

(3) If any such employee, without reasonable cause, refuses to do the work assigned to him or fails to do the work to the satisfaction of the Competent Officer. without prejudice to any criminal action which may be taken against him under this Ordinance, he shall be liable to disciplinary action and appropriate major or minor punishment, for dereliction of duty or misconduct on his part, in accordance with the terms and conditions of his service, and, notwithstanding any such terms and conditions, the punishment to be imposed may include loss of pay and allowances for a period not exceeding four months from the date of commencement of the examination.

4. *Power to appoint paper setters etc. for examinations*—(1) Notwithstanding anything contained in any law for the time being in force, in the case of any examination held or proposed to be held by any University, the Vice-Chancellor or the Registrar of that University and in the case of any other examination any other Competent Officer, may, if he is satisfied that the number of paper-setters, examiners, moderators, invigilators and other persons required are not sufficient or would not be sufficient for conducting the examination, he may appoint any suitable persons as additional paper setters, examiners, moderators, invigilators and other persons as he may deem necessary for the couduct of such examination.

(2) Any person so appointed shall be deemed to have been duly assigned the relevant work in connection with the examination for the purposes of section 3.

5. *Punishment for offences of refusal etc. to do examination work*—Any person, who, without reasonable excuse, refuses to do the work in connection with any examination assigned to him under section 3 or fails to comply with any directions issued thereunder shall, on conviction, be punished with imprisonment for a term which may extend to one year, or with fine which may extend to one thousand rupees, or with both.

6. *Punishment of Instigation etc.*—Any person who instigates or incites any other person or persons to take part in, or otherwise acts in furtherance of, refusal to do the examination work assigned to that person or those persons under section 3, shall, on conviction, be punished with imprisonment for a term which may extend to two years, or with fine which may extend to two thousand rupees, or with both.

7. *Offences to be cognizable and non-bailable*—Notwithstanding anything contained in the Code of Criminal Procedure, 1973, all offences under this Ordinance shall be cognizable offences and shall be non-bailable.

8. *Offences to be tried summarily*—Notwith-

standing anything contained in the Code of Criminal Procedure, 1973, all offences under this Ordinance shall be tried in a summary way by any Metropolitan Magistrate or any Judicial Magistrate of the First Class and the provisions of sections 262 to 265 (both inclusive) of the said Code shall, as far as may be, apply to such trial:

Provided that in the case of conviction for any offence in a summary trial under this section, it shall be lawful for the Magistrate to pass a sentence of imprisonment for any term for which such offence is punishable under this Ordinance.

Excerpts from the Maharashtra Prevention of Malpractices at University, Board and other specified Examinations Ordinance, 1982.

Ordinance No. IV

1. . . . .

2. . . . .

3. *Duties of paper setters and Punishment for contravention*—(1) Any person who is appointed as a paper setter at any examination shall not supply or cause to be supplied the question paper drawn by him or a copy thereof or communicate the contents of such paper to any person or give publicity thereto in any manner, except in accordance with the instructions given to him in writing by his appointing authority in this behalf.

(2) Any person who contravenes the provisions of sub-section (1) shall, on conviction, be punished with imprisonment for a term which may extend to one year or with fine which may extend to one thousand rupees or with both.

4. *Duties of persons entrusted with printing etc. of question paper and punishment for contravention* (1) Any person who is entrusted with the work of printing, cyclostyling, typing or otherwise producing copies of any question paper set for the proposes of any examination shall not supply or cause to be supplied a copy thereof or communicate the contents thereof to any person or give publicity thereto in any manner, except in accordance with the instructions given to him in writing by the authority which entrusted the work to him.

(2) Any person who contravenes the provisions of sub-section (1) shall, on conviction, be punished with imprisonment for a term which may extend to one year or with fine which may extend to one thousand rupees or with both.

5. *Duties of persons entrusted with custody of question papers and punishment for contravention*—(1) Any person who is entrusted with the custody, or is otherwise in possession, of any question papers set up for the purposes of any examination shall not supply or distribute or cause to be supplied or distributed any copy thereof or communicate the contents thereof to any person or give publicity thereto in any manner, except in accordance with the instructions given to him in writing by the authority which entrusted the custody or gave possession thereof to him.

(2) Any person who contravenes the provisions of sub-section (1) shall, on conviction, be punished with imprisonment for a term which may extend to one year or with fine which may extend to one thousand rupees or with both.

6. *Prohibition of supply or publication of any question paper before examination is held*—Whoever has in his possession any question paper set or purported to be set for any examination and supplies or causes to be supplied or offers to supply a copy thereof, or communicates or offers to communicate the contents thereof, to any person, whether for any consideration or otherwise, or gives publicity thereto in any manner, except in accordance with the instructions issued in writing by an authorised officer of the University, Board or other authority concerned with the examination, at any time before the examination is held, shall, on conviction, be punished with imprisonment for a term which may extend to one year or with fine which may extend to one thousand rupees or with both.

7. *Prohibition of copying and impersonating at examinations*—Whoever is found in or near an examination hall by the invigilator of any other person appointed to supervise the conduct of the examination, copying answers to the question paper set at the examination, from any book, notes or answer papers of other candidates, or appearing at the examination for any other candidate or using and other unfair means, shall, on conviction, be punished with imprisonment for a term which may extend to six months or with fine which may extend to five hundred rupees or with both.

8. *Punishment for abetment of offences*—Whoever abets any offence punishable under this Ordinance shall be punishable with the punishment provided for the offence.

9. *Offences to be cognizable and non-bailable*—Notwithstanding anything contained in the Code of Criminal Procedure, 1973, all offences under this Ordinance shall be cognizable offences and shall be non-bailable.

10. *Offences to be tried summarily*—Notwithstanding anything contained in the Code of Criminal Procedure, 1973, all offences under this Ordinance shall be tried in a summary way by any Metropolitan Magistrate or any Judicial Magistrate of the First Class and the provisions of sections 262 to 265 (both inclusive) of the said Code shall, as far as may be, apply to such trial:

Provided that in the case of conviction for any offence in a summary trial under this section, it shall be lawful for the Magistrate to pass a sentence of imprisonment for any term for which such offence is punishable under this Ordinance. □

Reasons behind the continuing crisis at Pantnagar

—An introspective resolution of the Academic Council— 8th March, 1982

An Evaluatory note adopted by the Academic Council of the G. B. Pant University of Agriculture and Technology Pantnagar, in its 165th meeting held on 8-3-1982.

Mechanisms for creative development are as important as fire-fighting

(*f*) *While we have a lot of trouble on the campus and, therefore, some of us are constantly engaged in fire-fighting exercises we have not built up another group of staff members who would work constantly in the direction of bringing about a cultural change amongst students. It is felt that if we could, by preparing suitable documentary material on video tapes or films, or using other mass-media, expose our students to the kind of cultural and behavioural patterns which exist in other professional institutions, our own students might feel motivated to emulate some of the behavioural patterns of students in some of the more prestigious institutions.*

It is true that the efforts in this direction are very much needed and we have to prepare a lot of documentary materials in the form of films, etc. to expose our students to the cultural and behavioural pattern existing in some of the educational institutions in the country. An orientation will also be needed for some of the teachers so that they can bring about this cultural change amongst the students. At present generally a teacher feels if he has taken his class on time, attended to some of his research advisory work, etc,. then his duty is finished. However, this is not true. A teacher, in addition to all his routine duties, owes it to himself and his profession that he is also concerned with tasks of up-grading the total environment of the University. He should take interest in bringing about cultural change by constantly interacting with the students outside the classroom or wherever else an opportunity is available. A lot of interest has to be generated amongst the teaching community or at least in some teachers to start work in this direction so that a process of evolution of cultural change is generated on the campus.

Periodical analysis of grading is a pre-requisite for objectivity

(*g*) *Because we have not been able to prepare a programme directory nor have we been able to complete results on time, we have really no idea of what exactly is being done by various members of the staff. We come across cases in which the results compiled by various instructors if analysed show that as many as 80 or 90 per cent students get 'A' grade. Once this happens, the very meaning of grading disappears. It is necessary, therefore, that some exercises on the analysis of the results of various courses should be undertaken and then we should decide whether our system of grading is suffering from any serious ailments.*

It is true that over the last couple of years the grading pattern in most of the cases has changed, i.e. there is a tendency on the part of teachers to award 'A' or 'B' grades. This has the following reasons:

(i) Many teachers were junior or appointed on ad-hoc basis as Teaching Associates, etc. and had no experience or requisite knowledge of teaching and, therefore, they took full advantage of the internal assessment system and followed the path of awarding easy grades.

(ii) Over the years, the student community also became more millitant and pressurised and demoralised the teachers in order to extract good grades out of them.

(iii) The advent of condensed trimester, etc. also led to award of easy grades. This is very serious matter as it has to be regarded as a black shadow on our academic standards. While it is not altogether true that we have been living on our past reputation, it is also a fact that we have have too many compromises with academic standards and if the process goes on, very soon, the credibility of our degrees will be lost. Therefore, it is high time that the University should think and plan so that adhocism in the appointment of teachers is abolished and the compilation of trimester results as well as the procedures for timely conduct of various examinations are enforced. In addition to these, the Instructors should also be given complete authority in academic matters and if a grade is awarded by them on the sound principle, it should not be questionable. Unless we give this authority to the teachers, the

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This is the second part of the document. The first part appeared in the last issue.

internal assessment system is going to collapse and will become a mockery in due course of time. Every Faculty should have a cell whose job should be to analyse the grades at the end of the trimester and submit a report to the Academic Council through its Board of Faculty. The analysis should be faculty-wise and not course-wise. This information may be used as a feed-back for the Faculties and the Academic Council. It should not in any way be used as material for embarrassing individual teachers. However the concerned teachers may also be informed about the results of the analysis and advised to look into the situation atleast for future rectification. While depending on the nature of the subject matter of the course, it is possible to get more 'A' grades such as the courses based on mathematics or mathematical analysis, in general, for the faculty as a whole, the grading pattern and the class average should be in the nature of a uniformally graded curve.

Exposure of faculty and students to distinguished outsiders would enhance perceptions

(*h*) *Despite the availability of funds for inviting experts, social scientists, and exponents of culture, we have not taken enough steps to break the cultural and intellectual insularity of Pantnagar University. It is urgently necessary that everything possible should be done in order to make use of these resources and get people, who will besides influencing the students and widening their horizons, also ensure that the participating faculty also gets an idea of what is happening elsewhere in the world and with reference to what kind of future problems, we should prepare our students*

Each faculty should propose atleast two names every trimester of such eminent persons in the field of Science, Technology, Social Science and exponents of culture so that such lectures may be planned for the benefit of both the students as well as the teaching community. Persons like Sri Arun Shourie and Sri Ravi Mathai whose lectures were arranged in the previous trimesters are the examples of how outsiders can initiate a process of change on this Campus. These lectures, however, can be organised under the auspices of the Cultural Society, Literary Society or Post-Graduate Society or these can also be organised by any other professional society. The pattern of working of professional societies should encourage them to organise such lectures or brain-storming sessions rather than organising society function in the usual way in which a lot of money is wasted in lighting and some third rate cultural programmes are organised by bringing cheap parties from nearby towns. In addition, the existing procedure for processing such proposals need to be simplified to reduce the time-lag between initiation of the proposal and decision on that. Setting up of a University level Seminar, Committee/Coordination Committee may be considered. This would process such applications and also identify/initiate action for inviting persons of eminence for lectures, seminars and other functions.

What should distinguish a Pantnagar product ?

(*i*) *A question was raised some time back about what is our image of the attitudes, personal qualities, behaviour and appearance of a proto-type student of Pantnagar so that we can work on measures to ensure that this kind of proto-type materialises in sufficient numbers on the Pantnagar University Campus.*

An untiring and continuous effort is needed in this direction. Debates and seminars or panel discussion should be organised on all these topics. Special VCR films may be prepared from some of the known campuses in the country such as Indian Institute of Management, Ahmedabad, Indian Institute of Science, Bangalore, etc. so that the students can be constantly shown these films, and always a question should be raised before them as to how a Pantnagar student looks and behaves and how does he compare with others. There is need for training in social adjustability and development of the kind of sophistication and sense of distinct but pleasant identity as that a graduate or post-graduate of this University would be able to fit into any kind of society in which he is placed. The present system of education at Pantnagar does not have this kind of work going on. Appropriate mechanisms and ideas will have to be generated in order to achieve this objective. There is need for the Deans of the various Faculties to take a lead in this direction.

Some people have developed a vested interest in instability on the Campus

(*j*) *We have not been able to establish healthy and abiding conventions regarding institutional character and organization of the University whose present mode of functioning is person oriented. Furthermore, in some cases our staff, including our faculty members have got used to no action being taken either to analyse the quantum and quality of their work or even in cases in which they have failed to discharge their obligations. Some people have consequently become quite lax and they have also developed a vested interest in lack of stability. They fear that, if the administrative and academic situation gets stabilized action may be taken against them it they don't mend their ways. This has led to some people developing a vested interest in continued destabilization. In addition as far as middle and lower level of academic staff are concerned, there is a lack of sense of participation in the decision making process.*

Over the years, ever since this University came into existence, we have not been able to develop a system in which the University should function without any centralised power or conductor. The people in this University, from all walks of life, have become person oriented rather than system oriented. Because of centralisation of powers with the Vice-Chancellor, everybody has started looking towards the mood and the face of one man sitting in the Administrative Building. This needs to be changed. Appropriate institutional and organizational mechanisms must be developed so that running of the University would become a truly participative process. It is to be remembered that the system is more important than any one man. Whatever may be the capabilities or attitudes of the Vice-Chancellor of the day and the strength of the administration, the continued functioning towards pursuit of excellence would depend on the individual and collective will of the campus community, particularly teachers. All must spend some of their time on constructive discussion for the well being of the University which is co-equal to their own well being. The faculties and the Academic Council will have to play a decisive role. To make the functioning of the latter, i.e., the Academic Council, more broad based. This is essential that much is to be done in this direction. It is, however, also true that for some of the people, laxity has become essential for their changed way of life. They feel that their vested interests would be endangered if normalcy comes to the campus. Hence, their interest is in destabilization. It has become very clear to them that once stabilization of the University administration occurs, people in positions of responsibility may start asking many questions from them about their past performance. Therefore, the only escape for them is through perpetuating destabilization on the Campus. In fact this has become a question of their survival. It is also true that over the years quite few people were identified against whom there were definite charges of corruption and inefficiency. Even though these charges were proved, simply because of inaction on the part of administration, no action was taken against them and they were never brought to books and, therefore, they started living from one destabilisation to another. There is no other course except deterrent punishment for the culprits.

Functioning of the Academic Council

(k) *Among other things, each Head of Department and other members of the Academic Council who belong to that department, should be required to discuss the agenda of the Academic Council with other faculty members of the department so that views of even those who are not members of the Academic Council get taken in account by the Academic Council before arriving at a particular decision. Furthermore, after the Academic Council meeting is over, every department should be required to meet again where the details and the background of decisions taken is explained to the Faculty of that department. This will enable every faculty member to have a sense of participation in the affairs of the Academic Council and in the decision making process: However, for all this to happen, it would be necessary that barring emergencies, the agenda of the AC meeting along with complete agenda notes be available about 15 days in advance.*

[Concluded]

UCMS Annual Day

About 100 students of the University College of Medical Sciences, affiliated to the University of Delhi, received their degrees on the occasion of their annual day function held recently

Lt. Governor of Delhi, Shri S.L. Khurana, who delivered the address, urged on the students to combine the human approach with technical knowledge in order to alleviate sufferings of the people.

Mr Khurana further pointed out that several schemes have been formulated for treatment and rehabilitation of leprosy patients. Mobile units have already been set up for detection of TB.

The University College of Medical Sciences is the third medical college in Delhi affiliated to the University of Delhi. The college was established in 1971 and has an annual intake of 100 students.

Construction of a 500-bed hospital-cum-medical college at Shahdara, meant for the University College of Medical Sciences is in progress.

Doctors taking oath at the Annual Day function of University College of Medical Sciences.

Agricultural Universities With International Assistance Usher Green Revolution

S. K. Mukerji*

Introduction

Even today about 72 percent of India's population depends on agriculture for a living, but while the population has been growing at a rate of over 2.3 percent a year, the increase in agricultural production to provide foodgrains, edible oils and cotton did not exceed an average rate of about 4 per cent until mid-sixties. Productivity per acre remained very low except in areas where chemical fertilizers came into use. Community development and extension services were first conceived in the early fifties and officially towards end of the decade under the second five year plan. No real breakthrough was achieved until the beginning of wheat revolution in 1967-68. However the decade preceding this achievement was marked by sustained efforts to improve agricultural education and create links between research workers, farmers and extension workers harnessed by agricultural departments.

Early stages

Five agricultural colleges had been set up even by 1907 to offer diploma courses and there were three veterinary colleges in the Presidency towns of Calcutta, Madras and Bombay. But subsequent progress was slow since enrolments were generally limited to the available government jobs. There were seventeen degree colleges and five postgraduates in agriculture and the annual enrolment was about 1500 students. In the field of research, there was greater employment in industrial raw materials like cotton, sugarcane, jute and tobacco than in foodgrains. The University Education Commission (1948-49) examined this situation under the leadership of Dr. S. Radhakrishnan. They felt that development of agricultural education on the pattern adopted in the United States after the Morill Act, 1862 would be appropriate to India. The Commission recommended the establishment of rural universities, each of which would include a ring of small, resident, undergraduate colleges with specialised facilities, but providing at the same time a common core of liberal education, with no field being excluded as being foreign to rural university. No action was, however taken on this recommendation during the next seven years. Meanwhile, a committee on higher rural education (Ministry of Education) recommended the setting up of rural institutes which could serve as training centres for development planning in rural areas, covering such subjects as rural hygiene, agriculture and rural engineering. The Government then proposed to set up ten such institutes in the second Plan (1956-61) but later there were other developments which altered the course of events.

Independence and after

In 1954, Govt. of India's, Ministry of Food and Agriculture constituted an Indo-American joint team to inquire into the problem of strengthening agricultural education after making a comparative study of the institutions in the United States and India. The team expanded the idea of a rural university recommended earlier by the University Education Commission in 1948-49 and suggested that agriculture, veterinary science, home science and arts, technology courses should be included along with agricultural research in the proposed rural university. At the same time, under an agreement between India and the US Technical Cooperation Mission in 1954, five American Land Grant Universities were drawn into the field (a) for providing 35 experts to assist Indian colleges of agriculture and veterinary sciences and the two research institute viz. the Indian Agricultural Research Institute and Indian Veterinary Research Institute (b) for training 35 Indian scholars in the United States, and for supply of library, laboratory and field equipment.

A second Indo-American joint team was set up in 1959 to examine the scope for further expansion of this collaboration. Taking note of the general demand in the states for the establishment of agricultural universities, but often without sufficient understanding of all the implications, the team recommended that assistance by the centre should be made conditional on adherence to certain basic principles regarding status, integration of teaching and research, and the location of all the faculties on the same campus.

By 1960, the number of agricultural colleges increased to 51 and of veterinary to 17, with a combined total enrolment of about 7500. One state alone, Uttar Pradesh, had more than one third of the colleges, of which several were private colleges which had mushroomed without adequate farm, laboratory and library facilities. The wastage rate was high, and as the graduates from these colleges were found unsuitable for most jobs, many of them remained unemployed.

The new universities

By 1960, the Uttar Pradesh government had established the Agricultural University at Pantnagar after enacting special legislation. Later, the Punjab, Orissa and Madhya Pradesh also passed legislation for the purpose. At that stage, a committee headed by Dr. Ralph W. Cummings, Field Director of the Rockefeller Foundation, was set up by the Govern-

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Ex-Vice-Chancellor, Rajendra Agricultural University, Pusa, Bihar.

ment of India to examine the proposals made by the state governments for setting up agricultural universities and to scrutinise their draft bills. It was on the basis of the work of this committee and the Model Act drawn up by ICAR that six universities were set up during the Third Plan period (1961-66) at Ludhiana, Udaipur (Rajasthan), Hyderabad (Andhra Pradesh), Bangalore (Karnataka) and Bhubaneswar (Orissa). The main principles underlying the Model Act were later endorsed by the Education Commission (1966) which laid stress on single campus universities, creation of facilities for basic and research for post-graduate courses and separation of extension from the purely supply functions of state agricultural departments. The Commission also supported the establishment of one University in each state. Till now, nineteen agricultural universities have been set up, one in each of the major states, except Maharashtra which has the dubious distinction of having four of them. But only eight of these universities have had the benefit of foreign aid in the matter of supply of experts, books and equipment and offer of participant training of their scholars. These are the seven set up by the end of the third plan in Uttar Pradesh, Punjab, Rajasthan, Madhya Pradesh, Andhra Pradesh and Orissa and the first University in Maharashtra which came into being in 1968.

International assistance

By 1969, USAID had provided about $10 million under its technical assistance programme, about two-thirds of which was expended on US experts sent to India and the balance for scholarships for Indian students and supply of equipment. In all about 200 long-term specialists and over 100 short-term consultants were provided to eight Universities. Under the participant training scheme, 423 degree holders and 1300 non-degree personnel were given training until 1969.

In addition, the Ford Foundation and the Rockefeller Foundation supplemented in various ways : the Ford allocated in all about $20 million between 1956 and 1969, a major portion of which was given for the Intensive Agricultural Development Programme to demonstrate how Indian farmers can combine their inputs to the best advantage ($12.6 million), to the IIT, Kharagpur to strengthen the PhD courses in agricultural engineering, for a water technology centre at IARI, New Delhi, for plant protection research at the University of Agricultural Sciences at Bangalore and for a home science faculty at Baroda. The Rockefeller Foundation assisted the post-graduate school in IARI, Delhi in cereal improvement research, evolution of crop hybrids with high potential in maize, sorghum and millets, etc. in providing funds for travel grants and scholarships, all of which helped to demonstrate the value of linkages with leading institutions abroad.

Some lessons

Many useful lessons have been learnt from drawbacks and shortcomings encountered in the implementation of the aided education programme. The integration of education with research, and of both with extension training, is still perhaps not all that it should be. Many universities have not yet developed to the point of playing a full role in research or in coordinating their work with the state agricultural department's research activities, partly because of the latter's reluctance to part with or share their own responsibility. Multiple campuses have made the achievement in standards of teaching and evaluation difficult. However, it is now accepted by both the donors and the Indian authorities that all the training facilities created within the country be fully utilised before the candidates are sent abroad for training and that these deputations should be limited to special fields where no facilities exist. It is also recognised that more incentives by way of pay or job opportunities be given to attract students of higher calibre, specially from rural areas to the agricultural universities. Similarly, home science courses in the agricultural universities should try to attract girls with a rural background who can provide supporting courses in agricultural and rural development. Attention has to be paid to identifying local problems for research, On balance agricultural universities have provided an institutional basis for higher agricultural education, established useful links with work done abroad in relevant fields of education and research and taken the country far towards self-reliance in research and application of its results. The third Indo-American joint team clearly stated in 1967 that the eight universities by then should aim at self-reliance without any technical assistance from 1971.

An exception to this programme was considered necessary and accordingly the Government of India applied to the United Nations Special Fund for assistance in the development of the capabilities and resources of some selected centres of postgraduate agricultural training which had already acquired a reasonable status. These were expected to serve as Centres of Excellence, whose object was to reduce the dependence on foreign training of staff for the Indian agricultural institutions and to maintain collaboration with the research activities and contribute to knowledge of foreign institutions with outstanding accomplishments to their credit.

P.G. training

On the basis of the reports of three special missions sent by the UNESCO and FAO, the UNDP approved in June 1969 an exploratory project for two years, to lay foundations for the creation of leading schools for postgraduate training and research in five fields (later raised to six) in an equal number of Agricultural Universities and research institutes. This involved a contribution of $539,436 by the U.N. Special Fund and Indian counterpart contribution of Rs. 2.3 miillion allocation to the institutions concerned. The preliminary phase was completed in 1973 and the project is now in its second phase which will last until 1977.

The six fields of research and the respective institutes or Universities were ;

1. Soil and water management at the Haryana Agricultural University.
2. Agricultural Economics at Indian Agricultural Research Institute, New Delhi.
3. Plant protection at the University of Agricultural Sciences, Bangalore.
4. Dairy sciences at the National Dairy Research Institute, Karnal.
5. Poultry breeding and production at Indian Veterinary Research Institute, Izatnagar (Uttar Pradesh).
6. Agricultural Engineering, at the Punjab Agricultural University, Ludhiana.

Under this UNDP scheme, the Agricultural University at Wageenengen (Holland) has provided for soil and water management. The US Department of Agriculture has selected experts on plant protection. For poultry breeding and production, Japanese and American Experts have been forthcoming. Other countries are also expected to send their experts during this phase, thereby strengthening the international linkages in research and contributing to the improvement of higher education in Agriculture. It would be difficult to make at this stage any firm appraisal of the UNDP scheme. Since it is founded on the fruitful experience of past Indo-American collaboration, there was no intention either on the part of the donors or recipients to increase the grants or the number of experts beyond certain limits, it may be assumed that this part of the aid will be given judiciously and made use of in appropriate ways.

The World Bank has also offered assistance during fifth plan (1974-79) to three of the newer agricultural universities in Bihar, Assam and Tamil Nadu. The amounts are substantial, $12 million for Bihar and Assam Universities and much more for Tamil Nadu. The pattern of aid may be different from the Indo-American programme in the sense that greater importance will be attached to full use of training facilities and experts within the country. World Bank aid will be more a form of providing larger resources for balanced development of Agricultural education than of foreign exchange for importing skills or equipment or sending trainees abroad evaluation on a large scale.

Evaluation

If an evaluation of the impact of foreign aid for agricultural education in the sixties is limited to the eight universities which were the direct recipients of such aid, the conclusion will be generally favourable, though four of them—the agricultural universities of Andhra Pradesh, Orissa, Rajasthan and Madhya Pradesh—have not fulfilled the expectations of the Indian authorities in respect of quality of teaching. They have opened many postgraduate faculties without qualified teachers and their campuses are too far flung to enable coordinated direction. Appointments of vice-chancellors by state governments have not always been happy. On the other hand the Universities in Uttar Pradesh and Punjab have done well and that of Mysore (Bangalore) seems to be catching up, judging by its choice as a centre of excellence under UNDP aid for plant protection research. The drawbacks of the former may have little to do with the forms of aid or the role of the collaborating US universities, for example Illinois has been collaborating both with the successful Pantnagar University and the less successful Jabalpur University, while Ohio State University has worked with both Punjab and Udaipur Universities. Since state government's policies have been responsible for bad appointments, location of too many campuses, and allocation of inadequate funds, it is clear that centre's efforts to evolve uniform principles through the Model Act have not succeeded. In Madhya Pradesh, for example, four campuses have Hindi as the medium of instruction while English remains the language in other three, making confusion and deterioration in quality of research inevitable.

This raises the question as to how far has foreign aid contributed to institution building as such, apart from the varying degrees of individual excellence of the Uttar Pradesh, Punjab and Mysore Universities. It is too early to judge the eleven new universities which came into being after 1968. The Haryana University at Hissar (1970) seems to be generally following the Punjab University, thus avoiding the pitfalls of others. Maharashtra's decision to have four universities, on the ground of regional climatic variations, will probably result in spreading available resources for education and research too thinly to enable purposeful research and may also dilute the quality of the graduates and reduce their job prospects.

The net contribution of foreign aid however, is the increasing awareness at the policy making levels of the conditions of success in higher agricultural education, the existence of the more successful institutions at Pantnagar and Ludhiana and availability of expert personnel from these institutions are manning other newer universities in their infancy or in difficulties. In the words of Vice-Chancellor K.C. Naik, the agricultural universities have had an impact in elevating the ceiling of comprehension, vision and determination in individuals. Dr O.P. Gautam, Director General of the I.C.A.R. expressed similar appreciation.

'There is perceptible improvement in the quality of education. They have brought down to large extent the wastage in higher education in agriculture. These institutions are serving as fountainheads of new knowledge earned through purposeful problem solving research and have become main centres of dissemination of useful knowledge to the farming community'.

Most of the weaknesses stem from political pressures in the states to start universities without sufficient resources or personnel ; but these weaknesses are unrelated to the concept, quantum or basic strategy of the foreign aid provided during the sixties. Nor can it be said aid should not have been

(Continued on page 405)

Convocation

Productivity and Higher Education

Excerpts from the convocation address delivered by Shri M. Hidayatullah, Vice-President of India, at the IIT, Kharagpur

"I have no doubt that you are all expecting me to speak to you, as if from a height. I like to make it quite clear that I have no intention of doing so. I have never approved the tendency, among public men, to hold forth on every possible occasion to unfortunate audiences on morality, philosophy and what have you. As a matter of fact, it is a great relief to me to share your company here today. I would much rather spend these few moments sharing some of my thoughts with you than in vainly attempting to add to the excellent instruction you have already received here....

"To begin with, there is the fact that you all belong to a special class of privileged people. Higher education is out of the reach of a large mojority of aspiring students. In fact, basic education, and even literacy, are beyond the reach of many millions of our people. You have reason to feel proud and grateful that you should have had the unique benefit of receiving a high standard of technical education in one of the finest and exclusive institutions in our country. This makes it important and necessary for you to appreciate the problems that face us to-day, so that your contribution to the country's progress leads to all round better achievement. Let us look at some facts which will help us understand what is happening around us.

"The economic situation in our country is well-known to all of us. Since Independence we have had more than three decades of eventful self-governance. Our achievements are many and have often been impressive. In agriculture, we have made tremendous strides and have nearly achieved self-sufficiency. The stagnant industrial picture of the early fifties has given way to a situation where we can boast of a high degree of indigenous capabilities in many areas. Our reliance on aid, particularly in the form of technology, is ceasing to cause concern. On several other fronts, like population-control, provision of social amenities to our villages, transport, communications and health-care, we have reason to feel satisfied with the results of our efforts.

"Needless to say, the story is not one of victories alone. For instance, look at the situation in higher education, particularly with reference to its relevance to industry and production. Even to-day, nearly 25 per cent of the persons we train in the fields of Science and Technology leave the country every year for jobs elsewhere. When we remember that we have to-day nearly 200 Engineering Colleges admitting more than 30,000 students per year as against 38 admitting about 3,000 in 1947 and 360 Polytechnics admitting about 50,000 students as against 53 admitting about 3,600 in 1947, we begin to understand the magnitude of the problem. And I have left out other ploytechnics meant exclusively for women and also specialised institutions like your IIT. Government spends yearly more than Rupees 3,000 crores on education, and about 10 per cent of it is spent on the teaching of Science and Technology.

"Why, then, are our people leaving and why are many of those who stay behind remain unemployed? Why this apparent surplus of technical manpower? After all seven lakhs of educated unemployed shoud mean slightly more than one person to a village. Can this be a real surplus? Or should we take a second look at the pace of development in the rural sector? Or, perhaps it is time, as I have been saying repeatedly that we take a fresh look at the entire question of the magnitude and nature of the product that is coming out of our educational institutions, with specific reference to what is required and in demand in the country. Perhaps there is something wrong with the fundamental framework. Perhaps we are producing too many people qualified in things that do not interest the employer or in fields that are not relevant to the developmental activity that is taking place. Perhaps we are producing too many of one type and too few of another. Perhaps we are not producing at all a new type which must be evolved, having regard to the changing situation in the country—like, for instance, a worker with less educational qualifications of a classical type and more specialised skill.

"Are we going to remedy the deficiencies which are contributing to brain drain or are we going to continue to subsidise, indirectly, the technological effort of developed countries? Strange as it may sound, this is true. I am told nearly 1,50,000 of our doctors are working abroad. Similarly, I understand that in one single place which Dr M.S. Swaminathan visited recently in the United States there are as many as 240 graduates working in a single institution and for the U.S. Government. One expert whom I heard recently estimated that India's contribution to the technological effort, of these countries from whom it is a recipient of aid, is of the order of Rupees 240 crores. He arrived at this figure from the per capita expenditure the country is obliged to incur on higher education.

"Surely, this could not have been our intention. It is up to the experts in the country, whose fold you will be joining soon, to see to corrective action..

"This year has been declared as the Year of Productivity. It is indeed a timely recognition of the gravity of the situation caused by the two problems I have referred to. You are all only too well acquainted with this matter and I shall not waste time attempting to define the problems of productivity. After all, it is merely a term used to describe an increased rate of production till the optimum level is reached, while the investments in terms of capital, labour and technology remain at the same levels. There are several ways in which this can be achieved : like increased commitment, effective systems of incentive and reward, better climate of industrial relations, better management, better deployment of available resources, greater emphasis on research and development, rationalisation of proceedings and estimates, etc. You have to study the various areas of deficiencies, come to conclusions about the evils that plague our system, devise proper solutions and employ them firmly and swiftly.

"After all, in the space of only 35 years or so, India which used to import even the simplest of manufactured goods has grown into a country self-sufficient in technology for the manufacture, not only of goods but also the plants and machinery required by most of the major industries. It cannot be difficult then for us to progress further. Only, improvement comes with great reluctance after a certain stage of initial development. Every little step requires so much more determination and effort. Elimination of wastage or prevention of idleness, for instance, are easy to begin with, but we may soon reach a stage where improvement comes slowly. The same is the case with intelligent use of manpower, machinery or capital.

"We have been able to manage all these areas with some satisfactory levels of exploitation of our natural resources, be it in the field of exploring for oil, searching for minerals and food in the seas or utilising our enormous forest wealth. Even so, the efforts for research, and search, have to be stepped up—stepped up quickly and considerably. It is into this situation, where skill, dedication and a sense of purpose will be of the essence, that you will walk when you leave the portals of your Alma Mater.

"From increased production, the talk has turned to enhanced productivity. The emphasis has similarly shifted from merely exploiting our resources to obtaining the maximum social cost benefit in this quest. We have on the one hand to improve the techniques of adult education and solve the problems of supplying drinking water to all our villages and, on the other, strive to find renewable sources of energy and to keep our pre-eminent status in the international arena in nuclear and space science. While finding enough food, shelter and clothing for the people, we have also to carry further the advantages our scientists have given us in new areas like exploration of Antarctica". □

Needed reforms in higher education

Excerpts from the convocation address delivered by Shri Pranab Mukherjee, Union Minister of Finance, at the Himachal Pradesh University.

"Whether we like it or not, a University convocation has come to be looked upon as somewhat of a ritual. People are expected to say things that conform to received wisdom which may not have much relevance to the conditions in which we are living. Moreover, we have come to look upon the occasion as one in which in the name of solemnity unbearable dullness is not only accepted but also encouraged. To my mind such a practice robs a convocation of its essential meaning and may one say, of its mystery as well.

"Basically a University convocation is a renewal of intellectual life on the campus. In its unbroken line of success from the past, it links the present generation to the academic endeavour of the past. Equally, it is a looking forward, not in the sense of prospect of good livelihood, but in the far deeper sense of an endless adventure of the mind and the spirit. It is the application of the rational mind to the problems of living society that has contributed to the unprecedented social, economic and technological transformation of human societies. It is this adventure that a University convocation should celebrate. Looked at from this point of view it could hardly be described as ritualistic or a dull occasion. The fact that it is perceived to be so, is a significant commentary on the times in which we live and function.

"When one thinks about the causes of crises in the University system one comes across sweeping generalisations. To some it is a simple line of idealism. To some others it is a short supply of funds. And invariably one stumbles upon the argument of political interference as the root of all that ails the education in our country. Depending upon the point of view one has, one proposes plans of reconstruction or restructuring or bringing into existence a brave new world that will be miraculously free from affliction of the old world. After this process has been gone through and some brave initiatives have been proposed, contrary to expectations a campus here or a campus there bursts into flames and we go back to fire fighting operations. As a result cynicism deepens and the will to take action grows even more feeble. It is not difficult to perceive that this line of diagnosis or treatment has not really worked in the past. There is also no reason to believe that it will work in the future. Nevertheless we somehow continue to cling to it more perhaps for reasons of safety than any other.

"The above analysis does not, however, imply that the current situation breeds only pessimism. I, for one, would not subscribe to such a view. It is a sign of wisdom and foresight to be able to realise and perceive the weakness of the system because only then can we be in a position to suggest the right remedies. I would not like to share the view of such of those critics who would advocate a wholesale sweeping away of the present system because they think it is colonial in outlook. In some aspects we may indeed have a colonial hangover. But it is necessary to remember that this very system has produced the world's third largest scientific and technological entity in our country. It has provided a strong base for technological self reliance. It has provided the human resources without which the growth process cannot function. It has provided a three fold increase in the number of Universities, a four fold increase in the number of Boards of Education and a three fold increase in the number of Arts and Science Colleges during the last two decades. The number of students on roll of Universities and Colleges has staged a massive five fold increase from a figure of 1.5 million in 1960-61. There are, therefore, plus points, indeed very strong plus point, in our system which has served the nation well during the past.

"We would, however, do well to pause for a while and look within ourselves and around to see whether any change of grears or direction is called for. We would do well to assess if our education system is serving our broad national interests and objectives. After all what is education for development or for that matter what is development. At the risk of superficiality let us say that development implies economic growth and certain accompanying social and individual changes. But here the main difficulty begins. What are the acceptable measures of economic growth? How central is the distribution of national wealth to the concept of development ? What distinguishes development from modernisation? The economists, political thinkers and social scientists will all give different answers to these questions and will perceive education or human resources development from their own standpoints. The economists would say that education is accumulation of human capital and its effective investment contributes to development of the economy. The political scientists would say that it prepares people for adult participation in political processes. Social scientists or sociologists would say that it reduces social inequalities and helps people to lead fuller and richer lives, less bound by tradition and custom. Actually education implies a combination of these values and the way in which the three views are combined and merged would largely be influenced by the requirements of individual nations and societies. After all we cannot deny that education is a scarce resource in a country like ours and we cannot adopt a completely social demand approach which implies creation of educational avenues to keep pace with the demands of society. An element of educational planning or what has been called as manpower planning approach is inevitable at our stage of development. Need for harmonising of the education system to meet the requirements of our growth process has to be kept in view. At the same time we have to recognise that education is one of the important factors which determines the level of living of individuals or group of individuals and is thus a major source of reducing or perpetuating social inequalities. Access to education, particularly access to higher education has to be made easier for those who come from weaker section of our society.

"Having recognised that there is a positive correlation between a person's educational attainment and his life—time earnings—it is not difficult to conclude that if for financial and other reasons the poor are effectively denied access to educational opportunities then the educational system can actually perpetuate and even increase inequality.

"Considering these fundamental and seemingly contradictory objectives of education, there is a grave danger that our policy may tend to become one of drift. Thus if we have to use education as means of removing social inequalities, general education would need to be made as widespread as possible. But one does not have to look far to see what such an approach can or has led us to. We are caught in an environment which has been aptly described as a nation afflicted by "diploma disease." With every passing year, job opportunities get linked with higher and higher degrees which have little relationship with actual job requirements. Should such a situation lead us to a policy of curtailing educational facilities and thereby give a go-by to our claims of using education as an instrument of reducing social inequalities ? Should the need to ration scarce resources to meet the sectoral priorities of our planning process lead to curtailment of educational avenues ? All these somewhat anomalous objectives make the task of the education planner an un-enviable one. The test of his success would lie in how appropriately and how perfectly he is able to blend these objectives into one coherent policy.

"Already there are warning signals around us which can be ignored only at our peril. From the various manifestations of indiscipline and mass copying there are any number of symptoms of mal-functioning. These are all symptoms of ill-health. University as a community of its scholars faces the moment of truth about itself, about its relationship to the wider society and about the process of change that affects it as it does to other segments of the society. It will be pointless to argue that somehow a University can escape the impact of these changes, that it can be insulated from the wider currents of social action. For instance, the extraordinary increase in the number of students on the rolls of University and Colleges is a phenomenon directly related to the expansion of primary and secondary education. As I have said before, it is a reflection of the desire of the weaker section of the society to obtain easier access to higher education which their families would not have dreamt of ever before in the past. Can we reverse this trend ? Or should we even try to do so ? I know it imposes heavy demands on the existing faculty. The fast social and political changes in the country since independence must have their academic corelates. The point to consider is how this tremendous expansion of system can be reconciled with the need to mantain a certain standard of excellence. It is obvious that in tackling this problem many accepted ways of functioning may have to be modified. For instance, the examination system, the curriculum, the extra-curricular and co-curricular activities and so on. This has not happened on anything like the scale needed for the purpose. Therefore instead of coping with the problem of change a view is sometimes expressed that the change itself is bad. Such a view would be retrograde and amounts to treating the University as a museum and not as a living entity that responds to any changes.

"Sometimes one gets a strange feeling when it is stressed that in a country which experimented so much during the colonial era is caught up in a situation when every one waits for the other man to try to do something new. Gurudev had to establish Shantiniketan when all around him was an orthodox University system. Gandhiji experimented new philosophies of education. These things created a new ferment of ideas. But now unless all institutions act simultaneously we cannot try out new ideas. One may be justified in blaming an impersonal system for the things that go wrong. In a specific situation it is the intellectual either individually or collectively who has to begin to put things on the right track. A happy feature of this process is that very often it does not require much financial support. Certainly it does not require expensively constructed buildings. What it does require is an inquiring and innovative attitude of mind. Pandit Jawaharlal Nehru described such an approach as a scientific temper. It does require a sense of response and a logical determinaton to face the consequences. That is what Universities are for. Indeed it would be acting in an expedient manner if it simply responds to pressures of accepting the demands and not venturing to change the nature of the demands.

"In my anxiety to highlight the need for effecting reforms and changes I may have perhaps been somewhat harsh to the existing system. I would hasten to clarify that it would not be correct to say that the present system is not responding to any changes. It certainly is. Alongwith much that we may regret, there is also a great deal that is extremely encouraging. The whole movement in science and arts and in social sciences is one of great vitality. Not a day passes when we do not hear of fresh exploits and path breaking works of our scientists, engineers and thinkers. Within our existing institutions our students and a large number of faculty members are thinking of new perspective of action and in many cases are even organising themselves for such action. We have to build on this and we have to go forward from here. There is increasing evidence that the enduring values of University life in their confrontation with the inauthentic formulations are emerging stronger. That is how each generation defines the Universities of its discourse. This struggle is for ever renewed. Therefore, I am not pessimistic but am on the contrary optimistic about the future. I believe that the creative energies of our people will find appropriate expression in a new University of future that would preserve the value of disinterested search after truth with passionate involvement in social action which aims at realising the age old dream of emancipation". □

AGRICULTURAL UNIVERSITIES

(Continued from page 401)

sought for the universities which have failed to profit by it, since it was a part of the national policy to create an active interest in agricultural education, set high standards and strive for uniformity in their application. Foreign aid came on the basis of a policy decision to adopt the land grant college pattern as the most suitable for Indian conditions : USAID and six American universities which have participated have done so after extensive consultations with the Government and periodical review of their methods of assistance. The annual conventions of the Indian Agricultural Universities have provided opportunities for forceful and uninhibited criticism of the defects of agricultural education, like the two dozen private colleges of Uttar Pradesh which were affiliated to the traditional universities, the serious under utilisation of existing agricultural university facilities and of serious instances of understaffing such as lack of PhDs for heading the senior faculties in some institutions. The National Commission of Agriculture has offered some guidelines for reform and the plan has also underlined the need to rectify drawbacks like regional imbalances in the intake of students, the high wastage and the unacceptable deviations from the prescribed pattern of integration of research, teaching and extension education. □

Campus News

Panel to study open university in AP

The Government of Andhra Pradesh has constituted an expert committee to go into the details of establishing an 'Open University' in the State.

The concept of Open University is to strengthen the already existing correspondence and external examination systems introduced in the State to meet the demand for non-formal education. The Open University will have the concurrence of the University Grants Commission to function independently with flexibility in academic matters. The UGC has sought a detailed project report from the State Government in this regard.

The six-member expert committee with Prof. G. Ram Reddy, Vice-Chancellor of Osmania University, as its Chairman will examine the details of Open University, courses to be conducted, staff pattern and financial implications. It will also study the impact of the establishment of Open University on existing degree colleges and corresponding courses run by various universities in the State.

The other members of the committee are: Mr. M. R. Appa Row, former Vice-Chancellor, Andhra University, Prof. B. Sarveswara Rao, former Vice-Chancellor, Nagarjuna University, Sri. B. Ramachandra Rao M.P., former Vice-Chairman, UGC, Sri M. Chandramowli Reddy, Secretary, Education Department and Convenor Sri K.V.V. Subba Raju, Director of Higher Education.

The Committee has been asked to submit a detailed report in two months.

UGC summer institute in electronics

A summer institute in Electronics for college teachers financed by the University Grants Commission was organized by the Physics Department of Kurukshetra University in collaboration with University Service and Instrumentation Centre. About 30 teachers drawn from Punjabi University, Patiala, Guru Nank Dev University, Amritsar, Jammu University and the affiliated colleges of Kurukshetra University are attending the institute.

Pointing out various strategies for the rapid growth of electronics in Haryana, Dr. K.S. Balain, General Manager, Haryana Industrial Development Corporation, Chandigarh, in his inaugural address stressed the need to promote production of electronics industry which now has been recognised as a "mother industry" having the potential to improve efficiencies in all sectors and walks of life. Dr. Balain disclosed that three more electronic centres are being planned in Haryana to manufacture electronic items like agri-electronic instruments and electro-medical instruments to meet the demands of the region.

The Vice-Chancellor Prof. Ganpati Chandra Gupta, who presided at the inaugural session of the institute, pleaded in his presidential address that the study of science is important not only for the students of science but also for the students of other disciplines like Philosophy, Literature and Arts, because science is essentially a method of studying and analysing a subject rationally and objectively.

While welcoming the Chief Guest, Prof. K.K. Nagpal, Head of Physics Department said that Kurukshetra University is the only University in this region which offers at undergraduate level the course of electronics. He further stated that the main objective of the institute is to impart adequate training to the college teachers in the subject of electronics.

Karnatak varsity rules for teacher's research

The Syndicate of the Karnatak University has approved a Statute which allows special facilities for teachers in constituent colleges to undertake research. Under this scheme a teacher of a constituent college can undertake research at the relevant post-graduate department of the University, provided he registers himself as a Ph.D. student under a recognized guide. Such a teacher shall have two afternoons per week free for his Ph.D. work. He should work on holidays to make up for shortage.

Application for a UGC grant by the candidate will be supported by the University. Pending UGC response the University will provide Rs 4,000 in all per candidate for a period of four years.

The candidate shall submit his thesis within four years. If he fails to get a degree he will have to refund the money spent on him by the University.

The Syndicate has also approved a similar scheme for Post-Doctoral research. The Post-Graduate departments will give the researcher necessary facilities. Rs 3,000 per researcher will be provided by the University during a period of 3 years for consumables etc. The researcher is required to publish at least two papers in abstract form during the 3 year period, failing which he shall be required to reimburse to the University the expenditure incurred on him.

Rotating headship at KU

The Executive Council of Kurukshetra University at its meeting held recently took an important decision relating to the complete rotation of headship in all the teaching departments of the university. According to the decision Professors, Readers and also those Lecturers who have completed ten years teaching in the university will be entitled to the office of headship for a period of two years. The decision is to be implemented with effect from 1 July, 1982.

However, the office of deanship tenable for a period of two years will rotate only amongst Professors irrespective of the fact whether they are holding the office of headship or not. In view of these decisions necessary changes in the functioning and constitution of departmental committees and staff councils will also be made.

A proposal regarding the acceptance of Selection Grades on Haryana Government pattern for the Superintendents, Personal Assistants, Assistants, Junior Clerks etc. in the university was also cleared at the meeting of the Council. According to the new grades the Superintendents covered under the selection grades can now reach up to Rs. 2100/- per month.

M.Sc. in environmental toxicology

An interdisciplinary course of M.Sc. degree in Environmental Toxicology is to be introduced with effect from 1982-83 at the Madras University. The course is being organised by Dr M.S. Krishnamoorthi, Reader and Head in charge, Department of Pharmacology, P.G. Institute of Basic Medical Sciences, Taramani, and other staff members. The 2-year course will be conducted at the Pharmacology department of the Institute from the academic year 1982-83.

It will involve the active participation of the Honorary Director, PGIBMS, Taramani, and experts from the Departments of Pharmacology, Madras Medical College, and Madras Veterinary College, Department of Genetics, PGIBMS, Taramani, Department of Zoology, University of Madras, Marine Biological Station, Zoological Survey of India, Madras, the Tamilnadu Forensic Science and Chemical Laboratory, Madras, and the Centre for Environmental Sciences, Perarignar Anna University of Technology, Madras.

Kakatiya Varsity decisions

According to a Press Release, the Kakatiya University will henceforth regulate admissions for all its post-graduate courses—M.A., M.Sc. and M.Com.—on the basis of candidates' performance at the Entrance Examinations alone. A decision to this effect was taken by the Academic Council at its meeting held on May 31.

The Academic Council resolved to throw open its LL.B. course for external candidates.

It was also decided to conduct external examinations in all its post-graduate courses in the faculties of Arts, Social Sciences and Commerce (Telugu, English, Economics, Public Administration, Mathematics and Commerce) from the academic year 1982-83.

Another decision of the Council was the revival of shortened B.Ed. course.

The Council also resolved to introduce Correspondence-cum-Contact course for inservice teachers.

New campus for Calcutta Varsity

Calcutta University, it is reported, has finalised plans for an alternate campus in a 120-acre plot in the Alipore area of South Calcutta. A detailed master plan is under preparation. The work is expected to cost around Rs 50 crores.

The campus earmarked for the university is expected to be handed over by the State authorities to the university soon.

The State Government has agreed to bear their share of the total cost of the new complex. The University Grants Commission is also reported to have agreed to consider the proposal of the university sympathetically.

KU short-term institute

The Kurukshetra University recently held a week-long short-term institute for college teachers in Geography. About 30 participants from various institutes attended the Institute.

The keynote address on 'Recent Trends in Geography Concepts' was delivered by Prof. G.S. Gosal of the Department of Geography of Panjab University.

The Institute was inaugurated by Dr M.S. Randhawa, former Vice-Chancellor of Punjab Agricultural University. Dr Randhawa pleaded for actively associating scholars of agricultural geography at the level of planning and implementation of various government developmental projects.

New members of UGC

The Government of India has nominated the following as members of the University Grants Commission for a two-year period: (i) Dr Ramesh Mohan, Director, Central Institute of English and Foreign Languages, Hyderabad; (ii) Prof. R.C. Mehrotra, Professor Emeritus, Department of Chemistry, University of Rajasthan, Jaipur (iii) Prof. C.N.R. Rao, Professor of Chemistry, Indian Institute of Science, Bangalore: (iv) Professor Anita Banerji, Professor of Economics, Jadavpur University, Calcutta; (v) Justice P.N. Singhal, Retired Judge of the Supreme Court of India; and (vi) Mr Kireet Joshi, Educational Adviser, Ministry of Education and Culture, New Delhi.

Dr. Ramesh Mohan is the current year's President of the Association of Indian Universities. Prof. R.C. Mehrotra was previously Vice-Chancellor of the University of Delhi.

Youth camp

A 7-day youth leadership training camp was organised by NSS department of the Panjab University at Dalhousie recently. Fifty-five volunteers from 25 colleges attended the camp.

Delivering the valedictory address, Prof. R.C. Paul, Vice-Chancellor of the university, said that education should aim at the development of personality. He further observed that degrees should be delinked from employment. University education should be confined to only those who are fit for it.

Grants to BHU

The Department of Musicology in the Faculty of Performing Arts of the Banaras Hindu University has received grants from the Sangeet Natak Academy for preparation of a dictionary of Indian music. The project will be guided by Dr (Miss) Premlata Sharma, Head of the Department.

The Planning Commission of the Government of India has approved a research project on Ganga Water Pollution and other Environmental studies submitted by the BHU. Dr B.D. Tripathi of the Botany Department of the university is the coordinator of the project.

New course at GNDU

According to Dr J.S. Grewal, Vice-Chancellor, Guru Nanak Dev University, M.Phil classes will be started in the university during vacation from the coming academic year. This was intended to benefit the teachers.

MBA classes were also proposed to be started in the university with effect from the coming session. He further said that a certificate course in Sanskrit and three new courses in Applied Science would also be started.

He disclosed that the university was likely to get a development grant of Rs 75 lakhs from the UGC for its various development projects during the current Plan period.

Computer course at DU likely

A 3-year Master of Computer Applications Degree Course is likely to be started by the University of Delhi w.e.f. the academic year 1982-83, it is understood, and is awaiting clearance of the University Grants Commission.

The emphasis of the course is likely to be on computer software and its application. Bachelor's degree holders in science, engineering or mathematics will be eligible for joining the course. Students of Economics and Commerce, having a background of mathematics, will also be considered for admission to this course.

Eligibility for degree course at Madras

The Madras University has decided to permit students who have passed the pre-university course or the Indian School Certificate Examination to join the Bachelor's Degree course in 1982-83. The extension of this eligibility for one more year for the students seeking admission to the BA/BSc and BCom course will be the last such extension to be granted. Otherwise, admission to these Courses is open only to those who have passed the 10+2 course.

KU protocol with USSR

Dr. A.P. Sharma, Professor in Physics Department of Kurukshetra University, has recently been invited by the USSR Government for some research discussions/lectures at the International Centre of Nuclear Research, Dubna, Moscow. The USSR Government has recently offered a protocol with Kurukshetra University for a period of 4 years for the study of "Superheavy Elements in Nature".

College teachers institute for A.P.

The Education Minister of Andhra Pradesh announced that a college teachers institute would be set up during the next academic year at Hyderabad for imparting professional training to the teachers in educational technology.

TNAU course in dairy technology

With effect from the coming academic session the Taimil Nadu Agricultural Universty at Coimbatore is likely to offer a diploma course in dairy technology. The one-year course at the undergraduate level is to be conducted by the Department of Dairy Science at the Madras Veterinary College.

KU institutes research degrees

Kurukshetra University has decided to institute three highest research degrees of D.Litt., D.Sc. and D.C.L. (Doctor of Civil Law). The proposal to this effect was cleared at the Academic Council meeting held recently.

New chemical

The National Metallurgical Laboratory in Jamshedpur has developed a chemical to prevent tarnishing of silver articles by atmosphere.

This liquid formulation when soaked in a piece of cotton-wool and kept near a silver article would prevent the tarnishing of the article due to oxidation.

This was disclosed in a paper presented by Dr. Inder Singh at a get-together organised by the Central Electro-Chemical Research Institute.

New courses at Ranchi Varsity

Dr. A.K. Dhan, Vice-Chancellor, Ranchi University, announced recently that the university will soon start degree level courses in journalism, fine arts and library science.

Dr. Dhan was speaking on the occasion of awarding of certificates to the first batch of successful students of the library science examination of the university. Sixty three students were awarded the certificates.

4-wheel pedal drive

A 4-member team of final year mechanical engineering students of the College of Engineering in Madras have designed and fabricated a 4-seater vehicle with facilities for pedalling by all four together or individually. The vehicle also incorporates a provision for reverse motion as well,

News from Agril. Varsities

Salinity problems in Australia

According to a Unesco report Australia has the world's largest area of salt affected soils, more than 20 times greater than North and Central America. Salinity problem is increasingly affecting Australia's agricultural and grazing land.

Two Australian researchers, Prof. Barry Osmond, Head of the Department of Environmental Biology at the Australian National University and Professor Michael Pitman of Sydney University have received a grant of SA 132,000 for a 3-year project researching the physiology of plant responses in saline soil.

The project will look at salt-sensitive crop plants to discover what distinguishes them from salt-tolerant native plants such as the mangrove or saltbush which have been widely studied in the past.

The research will also involve Dr Christa Chritchley of the Botany Department of the Australian National University whose previous work on mangroves showed that these plants have evolved a salt requirement for the basic processes of photo-synthesis, which means the plants continue to grow even in extremely salty soil. (*Courtesy : Autralian Information Service*).

Training in foodgrain storage

Training in proper storage of foodgrains has been organised jointly by the Food Division of the Central Government and the Konkan Krishi Vidyapeeth. This training is a part of the food storage campaign. The training is organised for the farmers from Karjat tahasil of Raigad district. The Rice Specialist and the Officer-in-Charge of the Operational Rice Research Project are actively involved in this twenty-one day training programme. The trainees will receive a stipend of Rs. 100 and a certificate.

The various aspects to be covered in the training are : protection of foodgrains in the field; stored grain pests and their control; rat control; different types of improved containers used for storage of food grains; plant *protection measures to* control different pests and diseases etc. In addition to this, visits to the farms and different foodgrain godowns and filmshows are arranged during the course of the training.

ICAR post-harvest technology workshop

A 5-day workshop on pre and post-harvest technology of the Indian Council of Agricultural Research was held recently at the Central Food Technological Research Institute, Mysore. The workshop reviewed the progress of work at different post-harvest technological centres of the ICAR. It also drew up a programme for the coming year.

Inaugurating the workshop, Prof. A.N. Bose, former Vice-Chancellor of Jadavpur University, pointed out that larger production called for mechanisation in harvesting, threshing and winnowing. He also emphasised the importance of training personnel in transfer of technology to rural areas.

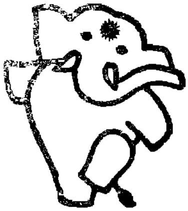
Drought tolerant paddy seedlings

The Bidhan Chandra Agricultural University at Kalyani in West Bengal has developed a simple technique for building up drought tolerant capacity in young paddy seedlings. The technique involves soaking the seeds in water or sodium orthophosphate or aluminium nitrate for 24 hours and drying them in shade before sowing. It is reported that this brings about a certain change in the roots and foliage of the emerging seedlings. The germinating seedlings are able to live through the dry spell till the rains come.

Farm students to work with farmers

About 150 students of the Punjab Agricultural University will fan out in 25 villages around Mahilpur in Hoshiarpur District for one week from June 6 for service to the farmers. They will work with farmers to take soil samples for analysis at the PAU soil testing laboratory and explain the results of these tests to them. They will also demonstrate the chemical control of pests and field rats, raising of paddy nursery, undertaking measures for plant protection, etc. Scientific storage of grains, farm forestry and dehorning of calves will form other subjects of instruction. They will also show them educational films.

The District Officers of the State Departments concerned with rural development such as Agriculture, Health, Public Relations, Education, Animal Husbandry and Forestry will be collaborating with the University in this task.



Delhi University venue for archery and handball

Handball is being introduced for the first time as an official sport in the IX Asiad. The court which is 20m by 40m with a synthetic teroflex surface is almost ready. The competition will be organised from 23 November to 30 November.

Likewise, the venue for Archery competitions is also ready. Archery competitions will be held on 21 and 22 November, 1982.

The venue for both these sports is the Delhi University. The stands, now nearing completion, at the Delhi University grounds can seat about 1500 spectators for each event.

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Dashrath. On some classes related to spiralike univalent and multivalent functions. Kanpur University. Dr. S.L. Shukla, Department of Mathematics, Janta College, Bakewar (Etawah).

2. Vinod Kumar. Study of certain integral operators for univalent and multivalent functions. Kanpur University. Dr. S.L. Shukla, Department of Mathematics, Janta College, Bakewar (Etawah).

Physics

1. Jha, Lok Narayan. Microwave antenna and radiation with application to plasmas (Thed). University of Delhi. Dr. M.P. Srivastava, Department of Physics and Astrophysics, University of Delhi, Delhi.

2. Patel, Surendrabhai Maganbhai. Hardness of crystalline materials. M.S. University of Baroda. Dr. J.R. Pandya.

3. Unnikrishnan Nair N.V. Relaxation mechanism in optical and photoconducting materials under pulsed laser excitation. Maharshi Dayanand University. Dr. R.D. Singh, Reader, Department of Physics, Maharshi Dayanand University, Rohtak.

4. Yadav, Surender Kumar. Study of some inorganic and organic material using laser and ESR. Maharshi Dayanand University. Prof. T.S Jaseja, Head, Department of Physics, Maharshi Dayanand University, Rohtak.

Chemistry

1. Ajay Kumar. Preparation and studies of some new polymers. University of Delhi. Dr. M.V.R. Rao, Department of Chemistry, University of Delhi, Delhi.

2. Bacria. P.V. Physical chemistry of biopolymers. University of Delhi. Dr. M. Atreyi, Department of Chemistry, University of Delhi, Delhi.

3. Bhargava, Kul Bhushan. Inorganic chemistry. University of Delhi. Dr. S.K. Sindwani, Department of Chemistry, University of Delhi, Delhi.

4. Chawla, Tirlok Chand. Physico-chemical properties of some proteins. University of Delhi. Dr. M. Atreyi, Department of Chemistry, University of Delhi, Delhi.

5. Dabhoklar. Kavita. Organic chemistry-synthetic. University of Delhi. Dr. H G.K. Murty, Department of Chemistry, University of Delhi, Delhi.

6. Dhawan, Rajive. Paramagnetic study of some amorphous materials doped with magnetic impurities. University of Delhi. Dr. S. Lahiry, Department of Chemistry, University of Delhi, Delhi.

7. Dhimmar, Ishwarlal Haribhai. Waxes and polymers. M.S. University of Baroda. Prof. A.M. Talati.

8. Gangwar, Sanjeev. Synthesis of long chain aliphatic compounds of biological and agricultural interest. University of Delhi. Prof. G.B.V. Subramanian, Department of Chemistry, University of Delhi, Delhi.

9. Gautam, Vinod Kumari. Studies on enzymes. University of Delhi. Dr. K S. Pandeya, Department of Chemistry, University of Delhi, Delhi.

10. Ghosh, Sanjukta. Synthetic organic chemistry. University of Delhi. Dr. H.G. Krishnamurty, Department of Chemistry, University of Delhi, Delhi.

11. Gupta, Yogesh Kumar. Electrochemical studies of layer lattice silicate. University of Delhi. Dr. B.S. Kapoor, Department of Chemistry, University of Delhi, Delhi.

12. Hari Om. Metal complexes. University of Delhi. Dr. H.B. Singh, Department of Chemistry, University of Delhi, Delhi.

13. Jain, Rakesh. Electro-chemical studies of organic compounds. University of Delhi. Dr. N.R. Bannerjee, Department of Chemistry, University of Delhi, Delhi.

14. Jain, Satendra Kumar. Structural determination of some metal-dithiocarbamates. University of Delhi. Dr. B.S. Garg, Department of Chemistry, University of Delhi, Delhi.

15. Malhotra, Arun. Inter-polymer-complexes. University of Delhi. Dr. S.K. Chatterjee, Department of Chemistry, University of Delhi, Delhi.

16. Mathew, T.V. Proteins and peptides. University of Delhi. Dr. V.S. Chauhan, Department of Chemistry, University of Delhi, Delhi.

17. Meena, N. Thermodynamic studies of amino acids in mixed aqueous solvents. University of Delhi. Prof. H.C. Gaur, Department of Chemistry, University of Delhi, Delhi.

18. Michael, George. Synthesis of long chain aliphatic compounds. University of Delhi. Prof. G.B.V. Subramanian, Department of Chemistry, University of Delhi, Delhi.

19. Pantar, Arun Venkatrao. Biophysical chemistry. University of Delhi. Dr. M.V.R. Rao, Department of Chemistry, University of Delhi, Delhi.

20. Pathak, Devendra Deo. Tertiary phosphines and their catalytic applications. University of Delhi. Prof. R.N. Kapoor, Department of Chemistry, University of Delhi, Delhi.

21. Pinkey. Synthesis of naturally occurring plant polyphenol University of Delhi. Dr. S.K. Grover, Department of Chemistry, University of Delhi, Delhi.

22. Pradhan, Vidya. Coordination chemistry. University of Delhi. Prof. R.P. Singh, Department of Chemistry, University of Delhi, Delhi.

23. Rajendra Singh. ESR studies on copper containing enzymes. University of Delhi. Dr. K.B. Pandeya, Department of Chemistry, University of Delhi, Delhi.

24. Ramachandran, Rama Devi. Studies in organometallic complexes of silicon and their analytical applications. University of Delhi. Prof. R.N. Kapoor, Department of Chemistry, University of Delhi, Delhi. Dr. P.K. Gupta, Department of Chemistry, University of Delhi, Delhi.

25. Ramesh Chandra, Y. Synthetic organic chemistry. University of Delhi. Dr. H.G. Krishna Murti, Department of Chemistry, University of Delhi, Delhi.

26. Saini, Tula Ram. Organic chemistry. University of Delhi. Dr. R.N. Khanna, Department of Chemistry, University of Delhi, Delhi.

27. Sapru, Rajinder K. Synthesis of long chain aliphatic compounds. University of Delhi. Prof. G.B.V. Subramanian, Department of Chemistry, University of Delhi, Delhi.

28. Saxena, Shabnam. Synthetic studies in benzopyrones and benzofuranones series. University of Delhi. Dr. S.K. Grover, Department of Chemistry, University of Delhi, Delhi.

29. Sharma, Anuradha. Inorganic analytical chemistry. University of Delhi. Dr. N.K. Kaushik, Department of Chemistry, University of Delhi, Delhi.

30. Sharma, Ashwani Kumar. Peptide hormones synthesis of conformation. University of Delhi. Dr. V.S. Chauhan, Department of Chemistry, University of Delhi, Delhi.

31. Sharma, Harsh Kumar. Use of inorganic reagents for organic synthesis and chemistry of natural products. University of Delhi. Dr. S.S. Chibber, Department of Chemistry, University of Delhi, Delhi.

32. Sharma, Rattan Lal. Electrochemical and mineralogical studies of layer lattice silicates. University of Delhi. Dr. B.S. Kapoor, Department of Chemistry, University of Delhi, Delhi. Dr. H.B. Singh, Department of Chemistry, University of Delhi, Delhi.

33. Sharma, Shuchi. Inorganic analytical chemistry. University of Delhi. Dr. N.K. Kaushik, Department of Chemistry, University of Delhi, Delhi.

34. Shiv Charan. Studies in coordination chemistry. University of Delhi. Dr. K.B. Pandeya, Department of Chemistry, University of Delhi, Delhi.

35. Shridhar, N. Characterization of metal chelates and their thermal studies. University of Delhi. Dr. N.K. Kaushik, Department of Chemistry. University of Delhi, Delhi.

35. **Sneria, P.V.** Physical chemistry of biopolymers. University of Delhi. Dr. M. Atreyi, Department of Chemistry, University of Delhi, Delhi.

37. **Sriram, Kasturi.** Influence of insecticides on the utilization of vitamin and the role of membrane phospholipids of heretic smooth endoplasmic reticulum. University of Delhi. Prof. V.V.S. Murty, Department of Chemistry, University of Delhi. Delhi, and Dr. U.K. Misra, Department of Biochemistry, V.P. Chest Institute, University of Delhi, Delhi.

38. **Sukhnundan, Jyoti.** Co-ordination chemistry. University of Delhi. Prof. R.P. Singh, Department of Chemistry, University of Delhi, Delhi.

39. **Suresh Kumar, G.** Physical chemistry of macromolecules. University of Delhi. Dr. M. Atreyi, Department of Chemistry, University of Delhi, Delhi.

40. **Tewari, Suresh.** Determination of stability. University of Delhi. Dr. B.S. Garg. Department of Chemistry, University of Delhi, Delhi.

41. **Tiwari, Ugrasen Nath.** Coordination compounds of transition metals and their application to gtlytic processes. University of Delhi. Dr. P.N. Kapoor, Department of Chemistry, University of Delhi, Delhi.

42. **Trivedi, Dushyant Madhusudan.** Synthesis of new polymers and evaluation of their physical properties. M.S. University of Baroda. Dr. R.A. Vora.

43. **Trivedi, Ramesh Chandra Narayan.** Swelling and oxidation of polymers. M.S. University of Baroda. Prof. A.M. Talati.

Earth Sciences

1. **Anirudhan, S.** Textural and mineralogical variations of sediments of Bharathapuzha river system. University of Kerala. Dr K.P. Thrivikramji, Scientist, Centre for Earth Science Studies, Sasthamangalam. Trivandrum.

BIOLOGICAL SCIENCES

Biochemistry

1. **Bhagavatheeswaran, S.** Studies on the metabolism of proteoglycans. University of Kerala. Dr. P.R. Sudhakaran, Department of Biochemistry, University of Kerala, Trivandrum.

2. **Unnikrishnan, V.S.** Biochemical investigation on proteoglycans in liver. University of Kerala. Dr. P.R Sudhakaram, Department of Biochemistry, University of Kerala, Trivandrum.

Botany

1. **Bawa, Rajan.** Structure and net community production of the herbaceous vegetation around Simla. Himachal Pradesh University.

2. **Bhardwaj, Veena.** Physiological studies on root initiation in certain stem cuttings. Himachal Pradesh University. Dr. V.K. Rai., Dr. R.S. Thakur.

3. **Bhat, Rajinder Prasad.** Systematics and ecobiology of agaricales. Himachal Pradesh University. Dr. T N. Lakhanpal

4. **Chopra, Ravinder Kumar.** Biology of corticolous myxomycetes. Himachal Pradesh University. Dr. S.N. Lakhanpal.

5. **Sukumar, Jayasree.** Studies on south Indian papilionacea. University of Kerala. Dr. P.K. Kuriachen, Department of Botany. University of Kerala, Kariavuttom.

Zoology

1. **Chauhan, Usha.** Studies on the mating behaviour, spermatogenesis and histochemistry of male reproductive organs in the potato tuber meth (Phthorimaea opaveulalla Zelle). Himachal Pradesh University. Dr. L.R. Verma.

2. **Gautam, Duni Chand.** Biological and cytological studies on mooly apply aphid (Eriosoma lanigerum Naishann) Himachal Pradesh University. Dr. L.R. Verma.

3. **Pannu, Harmahinder Kaur.** Studies on mating behaviour, cogenesis and histochemistry of the female reproductive organs in Spilachna beetle, Epilachana vigintiactopunctata Fab. Himachal Pradesh University. Dr. L. R. Verma.

4. **Sharma, Virinder.** Studies on helminth parasites of anthropoide in Himachal Pradesh. Himachal Pradesh University. Dr. G I. Agrawal. Prof. N K. Gupta.

Medical Sciences

1. **Agarwal, Dwarka Prasad.** Pharmaceutical investigation of ayurvedic antirheumatic products. University of Saugar. Dr Sneh Rani Jain.

2. **Ashok Kumar.** Studies on pharmacological characterizatioin of purinoceptors and their role in the action of some drugs. Panjab University. Dr. S.K. Kulkarni, Reader, Department of Pharmaceutical Sciences, Panjab University, Chandigarh.

3. **Jain, Janendra Kumar.** Phytochemical and pharmaceutical studies on some gums and their derivatives. University of Saugar. Dr. Vinod Dikshit.

4. **Puthak, Anupam Kumar.** Phytochemical and pharmacological studies on medicinal plants of compositae. University of Saugar. Dr Vinod Dikshit.

5. **Saini, Tulsi Ram.** Microencapsulation and formulation studies of some therapeutic agents. University of Saugar. Prof. S N. Sharma.

6. **Saluja, Ajay Kumar.** Phytochemical and pharmacological investigation on medicinal plants with special reference to fertility control University of Saugar. Dr. D. D. Santhani.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. **Annigeri, Ningappa Shivamurteppa.** Studies in graph theory. Karnatak University.

2. **Basu, Dipa.** Some problems of information theory and its applications. University of Calcutta.

3. **Chandra, Vemuri Purna.** Optimal operating policy and idle time utilization in some single server Markovian queues. I.I.T., Kharagpur.

4. **Karade, Trymbak Mahadeorao.** Some problems in the theory of relativity, special and general. *D.Sc.* Nagpur University.

5. **Mohanty, Ganeshwar.** Cylindrically symmetric interacting Einstein-Maxwell-Yukawa fields and stiff fluid distributions. I.I.T., Kharagpur.

6. **Nanda, Anjali.** Some problems of heat and mass transfer in hydrodynamics and hydro-magnetics. I.I.T., Kharagpur.

7. **Nanda, Dilip Kumar.** Aerofoil and wing problems in steady and unsteady motions. I.I.T., Kharagpur.

8. **Nepal, Ravendra Kumar.** Some queueing problems. Garhwal University.

9. **Pal, Tapan Kumar** Some results in fixed point theory. I.I.T., Kharagpur.

10. **Panda, Radhamadhab.** A study of some inventory problems with variable supply. University of Calcutta.

11. **Sen, Kasturi.** Some problems of the machanics of blood vessles. I.I.T., Kharagpur.

12. **Sharma, B K. Dev.** A study of flow problems through porous media. I.I.T., Kharagpur.

13. **Shende, Sharad Ramkrishna.** Some problems in fluid mechanics with magneto-hydrodynamic effects. Shivaji University.

14. Shil, Rabindra Nath. Symmetrical and asymmetrical factorials and main effect plans. University of Delhi.

15. Singh, Mahendra Narayan. Contributions to non-standard functional analysis. Magadh University.

16. Sudha. A study of a general class of polynomials and some integral equations. University of Delhi.

Physics

1. Awasthy, Piyush Kumar. Some studies in X-ray absorption spectroscopy. Vikram University.

2. Bandyopadhyay, Ratnabali. Studies on the transport properties of semiconductors. University of Calcutta.

3. Barua, Bikiranprasad Studies on elastic constants of metals and alloys. University of Calcutta.

4. Bharambe, Rambhau Supada Studies on etchpatterns and dislocations in glycine crystal. Nagpur University.

5. Buddhude, S. Optical spectra of Pr^{3+} and Nd^{3+} ions in certains solutions. Sri Venkateswara University.

6. Das, Kana,. Thermal variation of the magnetic behaviour of some crystals of iron group ions. University of Calcutta.

7. Ghorai, Santosh Kumar. Thermal, electrical and magnetic properties of some paramagnetic crystals of the first transition group at low temperatures. I.I T , Kharagpur.

8. Idiculla, Elizabeth Roschan. Helicon-phonon interaction and conductivity in solid state plasmas. University of Kerala.

9 Joshi. G.C Studies on sunspots. Kumaun University.

10. Joshi, K N. Study of complex angular momentum operators in terms of representations of homogeneous Lorentz group. Garhwal University.

11. Kapur. Brij Mohan. The study of R F. plasma using double probe technique. University of Indore.

12. Katra, Suresh Sadashiv. Studies in the X-ray absorption spectra of heavy rare earth metals and some of their compounds. Vikram University.

13. Math, Ningayya Nagayya. Spectroscopic studies of diatomic molecules : Investigation of CH, Cd, NH and BH emission band systems obtained in various sources. Karnatak University.

14. Pandey, A.K. Some problems in relativistic astrophysics. Kumaun University.

15. Purandar, K. Studies on the optical absorption spectra of some first group transition metal ions in zinc cesium sulphate hexahydrate single crystals. Sri Venkateswara University.

16. Rajebhosale, Mansinh Rajaram. Studies on semiconductor liquid junction solar cells formed with $Cd_{1-x}Zn_xS$ films. Shivaji University.

17. Ram Narayan. Sintering kinetics and magnetic and electrical properties of V_2O_5 doped Ni-Zn ferrites . University of Delhi.

18. Ray, Gautamkumar. Some studies on phonoscattering in solids. University of Calcutta.

19. Sarathi, Partha. Studies on fibrous polymers by X-ray diffraction techniques. I.I.T., Kharagpur.

20. Sarma, Pydimarry Venkata Chandrasekhara. Studies on total gamma ray cross sections in S, Y, Cs, Eu, Dy and Hq with HPGE spectrometer. Andhra University.

21. Shash, Jyotsha. Study of edge excitation protolytic photo-effect in dyes and structure sensitive transitions in rare earth ions. Kumaun University.

22. Sinha, Narain Prasad. Study of electrical behaviour of some metalamorphous, amorphous-crystalline and SnO_2 — crystalline junctions. University of Gorakhpur.

23. Talapatra, Gautambuddha. Investigation on the electronic spectra of some organic mixed crystals. University of Calcutta.

24. Talukdar, Pran Hari. Ionospheric irregularities and associated phenomena observed at Gauhati. Gauhati University.

25. Varada Rajulu, A. Optical absorption spectra of certain first and second group transition metal ions doped in some organic and inorganic crystals. Sri Venkateswara University.

26. Veeraiah, Valaparla. A study of the pseudo OSU (3) strong coupling limit. Andhra University.

27. Vijay Kumar, A. On some aspects of the electronic properties of evaporated lead telluride films. I.I.T., Kharagpur.

28. Yadav, Vijayee Ram. Electrical transport and magnetic studies of some rare-earth iron garnets. University of Gorakhpur.

29. Venkata Rama Raju, G. Electrode phenomena in seeded MHD combustion plasma. I.I.T., Delhi.

Chemistry

1. Adnan, Syed Sajjad Zaheer. Molecular orbital calculation on some organic compounds. University of Calcutta.

2. Agarwal, Lakshmi. Ternary complexes of transition metals (later transition metals with organic donors and base free phosphates). University of Rajasthan.

3. Bakshi, Ashok Kumar. Double-zeta pseudopotential studies within FSGO formalism. University of Delhi.

4. Bansal, Ajay Kumar. Infrared investigation of some photochemical and thermal reactions in alkali halide matrix. Vikram University.

5. Bansal, Shambhu Prasad. Electro-chemical behaviour of some biologically important compounds and their metal complexes. University of Rajasthan.

6. Banthia, Ummed Singh. Kinetics and mechanism of oxidation of hydrazines and their derivatives with thallic-perchlorate and correlation of structure with reactivity. University of Rajasthan.

7. Bhan, Parshotam. Juvenile hormone mimics. M.S. University of Baroda.

8. Bhatia, Brij Mohan Lal. Metal complexes of hydroxy derivatives of naphthoquinone. Garhwal University.

9. Das, Anupa. Studies in synthesis and analysis of antimalarials and antibacterials. Vikram University.

10. Das, Sajal. Studies and development of polyesterimides and allied polymers. I.I.T., Kharagpur.

11. Dattagupta, Bijan Kumar. Physico-chemical studies on lectins from some leguminous plants. University of Calcutta.

12. Dubey, Avinash. Studies in the chemistry of flavonoids. Vikram University.

13. Galagali, Siddhalingappa Channabasappa. Stabilities of some bivalent metal complexes of amino acid Schiff bases. Karnatak University.

14. Gandhi, Nirupama Ramachandra. Studies in coordination polymers. Nagpur University.

15. Gopala Krishnan, K. Studies in the formation and reactions of heterochelates. M,S. University of Baroda.

16. Gupta, Achla Kumari. Dehydrochlorination and grafting studies on polyvinylchloride. I.I.T., Delhi.

17. Gupta, Chandra Kumar. Studies in oxidation of some organic compounds by singlet molecular oxygen. Vikram University.

18. Gupta, Rajiv. 60 Co gamma—radiolysis of cerium (III) chelates with ethylenediamine tetra-acetic, nitrilotriacetic and iminodiacetic acids in aqueous solutions. University of Delhi.

19. Gupta, Rajiv Kumar. Search for possible ameobicides. University of Jammu.

20. Jadhav, Rajendra Tryambakrao. Organic chemistry of nitrogen, sulphur and oxygen containing compounds. Nagpur University.

21. Jena, Akshaya Kumar. Studies on transitional metal cluster complexes. I.I.T., Kharagpar.

22. Joseph. Mary. Mechanism of oxidation of organic compounds by metal ions. I.I.T., Delhi.

23. Kashi Ram. Physico-chemical studies of chelates derived from transition metal ions and substituted quinoline-carboxylic acids. Osmania University.

24. Katrualiya, Satyaprakash. Study of antifungal agents. Jiwaji University.

25. Kaul, Sindhu. Ultrasonic velocity studies in liquids and their correlation with the structural aspects. Awadhesh Pratap Singh University.

26. Kulshrestha, Lily. Electrochemical behaviour of amino acids, formation of peptides and Schiff's bases. University of Rajasthan.

27. Kunwar, Arjuna. Non-equilibrium thermodynamic studies on membrane phenomena. University of Gorakhpur.

28. Lagate, Jayant Sadashiv. Kinetic investigation of

some chloraminometric reactions in solutions. Jiwaji University.

29. Mishra, Awadhesh Kumar. Studies in oxygen containing heterocyclic compounds as pesticidal agents. University of Gorakhpur.

30. Modak, Sagar Chandra. Solvent extraction studies of metals with liquid ion-exchangers and its application in hydrometallurgy. Visva Bharati.

31. Mukhopadhyay, Ajay Kvmar. Studies on self-consistent methods in Huckel and extended Huckel theories. University of Calcutta.

32. Nayak, Surendra Kumar. Physico-chemical studies in solvents of high dielectric constant. Sambalpur University.

33. Ninan, K.N. Studies on the evaluation of thermal decomposition kinetics from thermo-gravimetric measurements. University of Kerala.

34. Packirisamy, S. Synthesis and physico-chemical studies of polymers. I.I.T., Kharagpur.

35. Pal, Sudhirchandra. Constituents of piper zinc and reaction of heterocycles with metal reagents. Uhiversity of Calcutta.

36. Prasada Rao, J.A V. Analytical studies on the influence of crop sequences on the soil and crop characteristics with reference to flue cured virgiania tobacco (Nicotiana tabacum). Andhra University

57. Ram Reddy, A. Spectroscopy of molecular interactions. I.I T., Delhi.

38. Sarkar, Ashish. Stereochemical studies on some organic reactions and reagents and synthetic studies on a few alicyclic and heterocyclic systems. I I.T., Kharagpur.

39. Saxena, Anil Kumar. Studies on the complexes of some of the IV and V main group elements with nitrogen donor ligands. University of Rajasthan.

40. Sethi, Vijay Kumar. Chemistry of natural products and preparation of semisynthetic compounds. University of Jammu.

41. Sharma, Chandra Bhushan. Inorganic glass-forming systems. University of Gorakhpur.

42. Sharma, Surendra Kumar. Studies on nitrogen containing heterocyclic compounds of biological importance. Garhwal University.

43. Sharma, Usha. Physico-chemical studies on the interaction of biological giant molecules like lysine hydrochloride with metal ions. Garhwal University.

44. Someswar, Gelli Parimala. Solvent influence on systems containing intramolecular hydrogen bonds involving OH and NH_2 groups. Osmania University.

45. Srivastava, Arun Kumar. An investigation on dyes and analytical reagents. Awadhesh Pratap Singh University.

46 Suresh Baba, V. Dehydroxycarbonyl compounds and their derivatives as inorganic analytical reagents. Sri Venkateswara University.

47. Tiwari, Mahesh Kumar. Studies in organic polarography. University of Indore.

48, Upadhyay, Janardan. Chemical investigation of Hyptis suaveolens. University of Gorakhpur.

49. Varshney, Sunil Kumar. Preparation and properties of styrene-siloxane block of co-polymer elastomers. I.I.T., Delhi.

Earth Sciences

1. Suryanarayana, Mukka Villi. Petrology and geochemistry of the granites and associated rocks of Vinukonda Area, Guntur District, Andhra Pradesh. Andhra University.

2. Joginder Singh. Sedimentologicals studies of the permotriassic [rocks in the eastern parts of Kashmir within latitude 33057-34057 N and longitude 7454-75(05 E. University of Jammu.

Engineering & Technology

1. Arif, Saifuddin. Prediction of the effects of carbondioxide injection on regenerator performance of varying operating and design parameters. University of Indore.

2. Banerjee, Swapna. Studies on MOS-CCD and graded heterojunction devices. I.I.T., Kharagpur.

3. Bhatia, Om Prakash. Traffic flow models using time lapse photographic technique. University of Indore.

4. Bhattacharyya, Santosh Kumar. Rectangular discontinuous steel fibre reinforced concrete beams under pure flexture, pure torsion and combined bending and torsion, I.I.T., Kharagpur,

5. Chakraborty, Ajay. Synthesis of phase function for a desired radiation pattern add fixed amplitude distribution. I I.T., Kharagpur.

6. De, Samir Kumar. Radiation pattern analysis of the paraboloid reflector antenna with shrouds or various shaped. I.I.T , Kharagpur.

7. Ghosh, Deba Prasad. An investigation on the dynamic characteristics of pile foundations under different mode of vibrations. I I.T., Kharagpur.

8. Gupta, Hari Shanker. Fluoresence and electron microscopy of acridine orange induced photodynamic denaturation of chromosomal DNA and non-photodynamic changes in plant cytoplasm. I.I.T., Kharagpur.

9. Hundekari, Shripad Govind. Starting of D.C. motors using a series inductor. Nagpur University.

10. Krishan Kumar. Studies on simulation of fuel injection, comdustion and gas exchange processes in a diesel engine. I.I.T., Delhi.

11. Mandal, Jnanendra Nath. Triaxial behaviour of reinforced earth. I.I.T., Kharagpur.

12 Murthy, N.S. Simulation studies on formation of nitric oxide inside the cylinder with gasoline and gasoline-water mixtures. I.I.T., Kharagpur.

13. Prabhakara Reddy, Benimi. Methanol supplementation in a naturally aspirated compression-ignition engine performance, fuel economy and exhaust emission characteristics. I I.T., Delhi.

14 Pradhan, Brajabandhu. Stresses around free and pin-loaded holes in filamentary composite laminates. I.I.T., Kharagpur.

15. Prasad, Raj Kishore. Finite element simulation of groundwater system. I.I T., Delhi

16. Purna, Chandra Rao T. Two-dimensional analysis of a short stator double sided linear induction motor using Wiener-hopf technique. I.I.T., Kharagpur.

17. Singh, Kamala Kant. Hydraulic performance of cavity wells. I I.T., Kharagpur.

18. Varanasi, Purushottam. Some approximations for filter design. I.I.T., Delhi.

BIOLOGICAL SCIENCES

Anthropology

1. Paddiah, Gangisetti. The effects of parental consanguivity and in breeding on the anthropometric measurements of the new born babies and on the obstetric histories of their mothers of Visakhapatnam District, Andhra Pradesh. Andhra University.

2. Venkata Ramma Reddy, Sodumu. Nutrition and health of mother and child. Andhra University

Microbiology

1. Patil, C.C. Studies on protozoa infecting certain arthropods from north-east region of Karnataka. Gulbarga University.

Biochemistry

1. Bandyopadhyay, Gautamkumar. Metabolism of essential fatty acids in fish. University of Calcutta,

2. Bhattacharyya, Kalyankumar. Studies on membrane bound auxin receptors. University of Calcutta

3. Borah, Rita. A study of hormonal influence on neoplastic growth. Gauhati University.

4. Lamba, Baldev Singh. Contributions to the study of wild life ecology in India. D.Sc. Panjab University.

5, Nanda Kumar, Menon. V.K. Studies on certain aspects of inorganic sulfate metabolism in Spirulina platensis. Jawaharlal Nehru University.

6. Radhakrisna, G. Biochemistry of polymyxin B and gramicidin dubos. Osmania University.

7. Sinha, Ajaykumar. Studies on the status of immunological competence in nutritional anaemias. University of Calcutta.

Botany

1. Abbasi, Parveen. Studies on plant parasitic fungi of Gorakhpur. University of Gorakhpur.

2. Agarwal, Dinesh Chandra. Studies on nutritional requirement and fertilizer application on seedling growth

and on development of Pinus caribaea Morelet. Garhwal University.

3. Bagde, Uttamkumar, S. Influence of physico-chemical factors on certain aquatic becteria. Jawaharlal Nehru University.

4. Bakshi, Sunita. Studies on biology of Phyllactinia dalbargine Pirozynski, the powdery mildew pathogen of Palledria sissoc Roxb. Jiwaji University.

5. Bera, Satyakinkar. Studies on fungous diseases of mango tree (Mangifera indica Linn) caused by Trametes corrungate (pers) Bres and Haagonia polygramme Mont. University of Calcutta.

6. Bharadwaj, S.P. Phytosociological and primary production of Pithoragarh grasslands in the Himalayas. Kumaun University.

7. Bhattacharya, Ajai Kumar. Studies on the effects caused by the effluents from Birla group of industries at Gwalior. Jiwaji University.

8. Billore, D.K. Ecological studies on Pichola lake Udaipur. University of Udaipur.

9. Farooqui, S.M. Taxonomic and phylogenetic significance of seed and seedcoat characters (LM & SEM) of the genus Nicotiana L (solanaceae). Kakatiya University.

10. Gautam, Sant Prasad. Role of pectolytic and cellulolytic enzymes in pathogenesis with reference to fruit rot disease of citrus caused by Thielaviopsis paradoxa. University of Jabalpur.

11. Gupta, Asha. Physiologico-ecological studies on algae of inland salt lakes of Rajasthan. University of Udaipur.

12. Gupta, Ravindra Kumar. Studies on the fungal deterioration of handloom fabrics. Garhwal University.

13. Gupta, Surendra Narain. Cytogenetic studies of some ornamentals. University of Gorakhpur.

14. Gururaja Rao, G. Physiological studies on the influence of sodium chloride salinity on leaf metabolism in pigeon pea (Cajanus indicus Sprong) and gingelley (Sesamum indicum L.) Sri Venkateswara University.

15. Hemaraddi, B. Morphological and embryological studies in some commelinaceae. Karnatak University.

16. Kadu, Vinay Krishnarao. Cytogenetic studies in Lepidium sativum Linn. Nagpur University.

17. Kapoor, Manohar Lal. Studies on the relative sensitivity of some selected forest tree species to physical and chemical mutagens. Garhwal University.

18. Maji, Sudarsan. Studies on the vegetation and flora of Midnapore District, West Bengal. University of Calcutta.

19. Majumdar, Supriya. Studies on the ultraviolet light induced damage-repair and mutability of Azotobacter vinelandii op. University of Calcutta.

20. Malasi, Chandra Ballabh. Ontogeny, histogenesis and experimental analysis of fruits of Berberis asiatica Roxb and Emblica officinalis Gaertn. Garhwal University.

21. Matai, Shyam Balram. Trapping of non-conventional sources of protein. University of Calcutta.

22. Om Prakash. Flora of Sultanpur. University of Gorakhpur.

23. Paliwal, Satya Prakash. A study of the organization, structure control and seasonal behaviour of Cambium and its contiguous tissues in some Himalayan trees. Garhwal University.

24. Pandey, B.N. Studies on the brown fruit rot of pear (pyrus communis L.) caused by Phytophthora cactorum (Lab. & Cohn) Schroet, and its control. Kumaun University.

25. Prasad, Usha. Studies on mutation and transformation in Thermoactinomyces vulgaris. University of Delhi.

26. Rani Bala. Cytomorphological and chemotaxonomic studies of some species of genus Croralarial. University of Jammu.

27. Reddy, B.V.N. A contribution to the autecology of Trianthema portulacastrum L. Striga angustifolia (D. Don) Saldanna and Aeschynomene indica L. Nagarjuna University.

28. Saxena, Rajiv Kumar. A study of the acromyospora of Dehradun. Garhwal University.

29. Sehgal, Subhash Chander. Seed pathology of certain members of cucurbitaceae. Vikram University.

30. **Sharma, Bijendra Singh. Microbiology of aerial surfaces of Cymbopogon martinni (Roxb) Wats and Dichanthium annulatum (Forsk) Stapttoo under similar environmental conditions. Vikram University.**

31. Sharma, Maheshwar Prasad. Pollen flora of Garhwal Hills (Pokhari Block), District Chamoli. Garhwal University.

32. Sharma, S.K. Ecophysiological and biochemical studies of medicinal plant Oenanthe javanica (Blume) D.C. Vikram University.

33. Shat, Ratanchandra. Drug resistant Trichophyton rubrum and related dermatophytes. University of Calcutta.

34. Shevde, A. Evaluation of toxicological effects of pesticides with reference to new crop varieties. Vikram University.

35. Shiva, M.P. Effect of ecological and physiological factors on the physico-chemical properties of Eucalyptus tereticornis (Mysore hybrid) Oil. Garhwal University.

36. Shyamala, Sarvepalli. A comparative study of the photosynthetic metabolism of C_3 and C_4 in plants under water stress. M.S. University of Baroda.

37. Singh, Dhirendra Pal. Organisation, structure and seasonal behaviour of Cambium and its contiguous tissues in some sub-Himalayan trees. Garhwal University.

38. Singh, Nameirakpama Irabanta. Studies on the airspora of Shillong and its suburbs. Gauhati University.

39. Sinha, Govind Shankar. Ecophysiological studies on biological fixation by certain blue green algae. University of Udaipur.

40. Srivastava, R.B. Studies on thermophilic fungi associated with agricultural products and refuse. Kumaun University.

41. Srivastava, Renu. Evaluation of higher plants for their fungi toxicity against Rhizoctonia solani. University of Gorakhpur.

42. Tara Chand. Anatomic pharmacognostic studies on certain medical plants of the state of Rajasthan-II, the gamopetalae and the monocotyledones. University of Rajasthan.

43. Thulajappa, Y. Morphogenetic and biochemical studies on some members of malvaceae. Karnatak University.

Zoology

1. Abhinendar Naidu, K. Aspects of lipid metabolism in the frog, Rana cyanophyctis with special reference to hypophysectomy and hormonal treatment. Sri Venkateswara University.

2. Achar, K. Prabhakar. The use of air drying and giemsa differential banding techniques in the cytological studies of some Indian diplopoda. Bangalore University.

3. Bahuguna, Satya Nand. Ecological morphology of the alimentary tract of some hillstream fishes. Garhwal University.

4. Baloni, Shiv Prasad. Faunal survey and ecology of fishes of Tehri. Garhwal University.

5. Bhardwaj, J.C. Studies on the histochemical and biochemical changes in the epididymis of certain micro and megachropteran mammals. University of Udaipur.

6. Chandra, Kirtunia Juran. Studies on larval cestodes and acanthocephalla from marine hosts of Andhra coast. Andhra University.

7. Chaudhuri, Anuradha. Control of transcription in developing fish gametes and embryos. University of Calcutta.

8. Deshpande, Badrinath Raghavendra Rao. Histophysiological studies on certain appendicular muscles of some aquatic birds with special reference to their energetics. Kanatak University.

9. Durga Prasad, M.K. Studies on systematics and ecology of Branchiopods of Guntur District and its environs, Andhra Pradesh, India. Nagarjuna University.

10. Fartade, Madhukar Mahadeo. Studies on mucosubstances in gonads and associated reproductive organs of some vertebrates. Shivaji University.

11. Gadkari, Anuradha Shamsundar. Evaluation of the toxic effects of some chemicals on fishes and invertebrate forms. Nagpur University.

12. Ghufran Ahmad. Studies on the effect of the textile pollution (silk industry) on certain tissues of some freshwater teleosts of Khajua Tal', Mubarkpur, District Azamgarh, U.P., India. University of Gorakhpur.

13. Girish Kumar. Studies on migratory birds and their feeding behaviour in Corrbett National Park. Garhwal University.

14. Goel, Prem Kumar. Studies on experimental encyclostomiasis in chicken: Relation of the bursa and other lymphoid organs to Ancyclostoma ennium infection. Vikram University.

15. Gupta, Awadh Behari. Physiological changes in a teleost, as affected by certain water pollutants. University of Gorakhpur.

16 Ingale, Shrimant Raghunathrao. Studies on the mucus from the integument and gills of fishes. Shivaji University.

17. Jalaja Kumari, Chukka. Studies on marine littoral and terrestrial isopods (crustacea) of Andhra Pradesh. Andhra University.

18. Kanmadi, Ravishankar Dundappa. Some aspects of reproductive biology of the toad Bufo-melanostictus (Schn). Karnatak University.

19. Kara, Tarani Charan. Studies on respiratory metabolism and some enzymes in the liver of young and old male garden lizards. Berhampur University.

20. Kashyap, Sushila. Studies on the innervation of gonads in poikilothermal vertebrate with particular reference to its role in gonadal activity. University of Indore.

21. Lakshmana Rao, Sarraju Subba. Immunological status of maculo-anaesthetic type of leprosy. Osmania University.

22. Madhava Reddy, B. Studies on some biochemical and physiological aspects of two poultry cestodes, Cotugnia digonopora and Raillietina tetragona. Osmania University.

23. Mishra, Safal Kumar. Studies on the hill steam fishes along the Nepal-Bihar Border. University of Bihar.

24. Moharana, Sadasiba. Cytological survey of Indian coccids. Utkal University.

25. Mukherjee, Rita. Studies on kinetics of blood coagulation and thrombolastography in three mammals rabbit, goat and man. Vikram University.

26. Paranjape, Sushama Pradeep. A study of some common fish parasites and evaluation of toxic effect of a few chemicals on them along with the pathological changes observed in the infested tissues of the host. Nagpur University.

27. Raghunath, Wasudeo. Sex cycle and histochemical observations of the genital tract of Hipposideros Lankadiva. Nagpur University.

28. Rukmini, V. Hormonal regulation of glucosamine 6-phosphate synthase in the reproductive organs of rat. University of Hyderabad.

29. Sen, Shanta. Hormonal interaction on the reproductive metabolism of a female teleostean fish Anabas testudineus (Bloch). Visva Bharati.

30. Sharma, Ramesh Chandra. Ecological studies on some food fishes of Bhagirathi. Garhwal University.

31. Sharma, Shiv Deen. Studies on the cytology of certain digenetic trematodes with special reference to their spermatogenesis. Awadhesh Pratap Singh University.

32. Subramanyam, O V. Biochemical and metabolic studies with special reference to neurosecretion in a selected mollusc. Sri Venkateswara University.

Medical Sciences

1. Bhaskar, Kishor. A study of immunity in leprosy and its relation to genetic factors. Nagpur University.

2. Chattopadhyay, Arupkumar. Studies on insulin biosynthesis in isolated rat islets of langerhans with effect of some cytotropic and cytostatic agents thereon. University of Calcutta.

3. Ramakrishna Reddy, Kunkala. A study of genetically determined anaphyloctoid reaction in dogs to PVP and Tween 20 and its blockade by cimetidine and Dexamethasone. Andhra University.

4. Ravindran, B. Experimental immunological studies in mammlian malaria. University of Delhi.

Agriculture

1. Biswas, Sukanta. Studies on the comparative effects of cycoel and ethrel on growth and flowering of some ornamental plants. University of Calcutta.

2. Mukherjee, Krishna Kumar. Cooperative marketing and processing of paddy in West Bengal: A techno-economic study. I.I.T., Kharagpur.

3. Nigam, Kanti Mohan. Miscible displacement of chloride in lateritic soil. I.I.T., Kharagpur.

4. Panigrahy, Sushma. Characterization and plant-bacterium interaction of Rhizobium in nodulation of Phaseolus aureus. I.I.T., Kharagpur.

5. Rafey, Abdul. Studies on agronomic practices influencing yield, milling out turn and quality of rice. I.I.T., Kharagpur.

6. Sudhakar, Nalam. Studies on agronomic management for upland rice. I.I.T., Kharagpur.

Veterinary Science

1. Bandopadhyay, Amaresh Chandra. Pathogenesis of acute spirochaetosis in the chicken. Jawaharlal Nehru Krishi Vishwavidyalaya.

2. Moitra, Ashim Kumar. Studies on the in vitro and in vivo transfer of antibiotic resistance through resistance transfer factors in Salmonella and Escherichia coli isolated from poultry. Jawaharlal Nehru Krishi Vishwavidyalaya.

ADDITIONS TO AIU LIBRARY

Aggarwal, J.C. and Agrawal, S.P. *Role of Unesco in education.* Sahibabad, Vikas (c 1982) x, 386p.

Berk, Ronald A., *ed Criterion-referenced measurement : The state of the art.* Baltimore Johns Hopkins University Press (c. 1980) x, 231p.

Bligh, Donald A., and others, *Methods and techniques in post-secondary education.* Paris, Unesco, 1980, 136p.

Bose, Ashish and others, *ed. Social Statistics : Health and education.* Sahibabad, Vikas (c 1982) xiv. 375p.

Centre for Contemporary Cultural Studies, Birmingham. *Unpopular education : Schooling and social democracy in England since 1944.* London, Hutchinson (c 1981) 307p.

Clarke, John. *Resource-based learning for higher and continuing education.* London, Croom Helm (c 1982) 211p.

D'Souza, Victor S. *Educational inequalities among scheduled castes : Case study in the* Punjab. Chandigarh, Panjab University (c 1980) v, 69p.

Elton, Lewis. *Staff development in higher education* Guildford, Society for Research into Higher Education (c 1979) 336p.

Evan, William M., *ed. Knowledge and power in a global society.* London, Sage (c 1981) 320p.

Fernig, Leo R. *Place of information in educational development.* Paris, Unesco, 1980. 115p.

Fitzgibbons, Robert E. *Making educational decisions.* New York, Harcourt Brace (c 1981) xi, 261p.

Fox, Karl A., *ed. Economic analysis for educational planning : Resource allocation in non-market systems.* Baltimore, Johns Hopkins University Press (c 1972) xiii, 376p.

Gittell, Marilyn, *ed. Educating an urban population.* California, Sage (c 1967) 320P.

Gustafsson, Bo, *ed. Post-Industrial society: Proceedings of an International Symposium, Uppsala, 1977.* London, Croom Helm (c 1979) 238p.

Hamm, Russell L. *Philosophy and Education : Alternatives in theory and practice.* Danville, Interstate (c 1981) x, 212p.

Hawkridge, David and Robinson, John. *Organizing educational broadcasting.* London, Croom Helm (c 1982) 302p.

Howick, William H. *Philosophies of education.* Danville, Interstate (c 1980) xiv, 149p.

Husen, Torsten, *ed. Future of formal education : The role of institutional schooling in industrial society.* Stockholm, Almqvist & Wiksell International (c 1979) 104p.

Illich, Ivan. *Shadow work.* Boston, Marion Boyars (c 1981) 152p.

Jenkins, Janet. *Materials for learning : How to teach adults at a distance.* London, Routledge and Kegan Paul (c 1981) xii, 209p.

Kaelble, Hartmut. *Historic research on social mobility : Western Europe and the USA in the nineteenth and twentieth centuries.* London, Groom Helm (c 1981) 160p.

Lazarus, Mitchell. *Goodbye to excellence : A critical look at minimum competency testing.* London, Westview Press (c 1981) xv, 206p.

Macey, David, *tr. Teachers, writers, celebrities : The intellectuals of modern France.* London, NLB (c 1981) xxvi. 251p.

Malik, Yogendra, K., *ed. South Asian intellectuals and social change : A study of the role of vernacular-speaking intelligentsia.* Delhi Heritage, 1982. 352p.

McPeck, John E. *Critical thinking and education.* Oxford, Martin Robertson (c 1981) 170p.

Millman, Jason, *ed. Handbook of teacher evaluation.* Washington, Sage (c 1981) 356p.

Mookerjee, Anjali. *ed. Proceedings of the workshop on environmental education. Delhi, 1979.* Aligarh, M. Abdul Munim, 1979. xvii, 131p.

Murdoch, William W. *Poverty of nations : The political economy of hunger and population.* London, Johns Hopkins University Press (c 1980) xv, 382p.

Oz'gi, Albert and Ocho, Lawrence. *Education in Northern Nigeria.* London, Allen & Unwin (c 1981) x, 143p.

Palazzolo, Charles S. *Small groups : An introduction.* New York, D. Van Nostrand (c 1981) xiii, 352p.

Pattanayak, D.P. *Multilingualism and mother tongue education.* Delhi, Oxford University Press, 1981. xvii, 185p.

Pimpley, Prakash N. *Profile of scheduled castes students : The case of Punjab.* Chandigarh, Panjab University (c 1980) xiii, 120p.

Rasool, G. *Youth leadership in India.* Delhi, Seema, 1981. 112p.

Rich, Robert, F., *ed., Knowledge cycle.* London, Sage (c 1981) 222p.

Rushworth, F.D. and others. *Purposes in education.* Kent, Institute for Cultural Research (c 1974) 38p.

Stockwell, Edward G and Laidlaw, Karen A. *Third world development : Problems and prospects.* Chicago, Nelson-Hall (c 1981) xv, 352p.

United Nations Institute for Training and Research. *Brain drain from five developing countries.* New York, Author, 1971. 173p.

Wasson, John M. *Subject and structure : An anthology for writers.* Baston, Little, Brown (c 1975) xvi, 491p.

West, E.G. *Education and the industrial revolution.* London, Batsford, 1975. 275p.

Woodhall, Maureen. *Cost-benefit, analysis in educational planning.* Paris, Unesco, 1980. 51p.

Classified Advertisement

(Continued from page 420)

dates will be tested for their aptitude in instrumentation).

Console Operator

(a) Atleast a second class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics, Operational Research or Physics;

OR

Atleast a second class (not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised institution and

(b) Familiarity with Console Operation.

Technical Assistant

Graduate in Science. Experience in Laboratory Techniques of the subject (Botany).

Special/Desirable Qualifications

Research Associate in Chemistry

Specialisation in Inorganic Chemistry.

Assistant Director of Physical Education

Should have previous administrative experience of organising games and sports at University level. Proficiency in games upto Inter-University and Nationtal level.

Senior Technical Assistant

Working knowledge of operating an electron microscope. Knowledge of Photography will be considered as additional qualification.

Technical Assistant

Repair of Electronic Instruments/Refrigeration/Photography.

The prescribed application form can be had from the Information Section of the University either personally or by sending a self-addressed envelope (size 13 cm x 28 cm) with postage stamps worth **Rs. 3.45 p.**

The candidates will have to produce the original documents relating to their age, qualifications, experience etc. at the time of interview.

Applications (separate for each post) accompanied by attested copies of Degrees, other certificates, marksheets, etc. should be sent to the Registrar, University of Delhi, Delhi.

The last date prescribed for receipt of the applications is **7th July, 1982.**

Note :

1. It will be open to the University to consider the names of suitable candidates for teaching posts who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, in respect of all teaching posts on the recommendation of the Selection Committee.
2. Canvassing in any form by or on behalf of the candidates will disqualify.
3. Candidates from outside Delhi, for teaching posts only, called for interview will be paid to and fro single second class rail fare.
4. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

REGISTRAR

CLASSIFIED ADVERTISEMENTS

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRUSHINAGAR-385506.
DIST. BANASKANTHA
Advertisement No. 5/82

Applications are invited in the prescribed forms for the following posts in the Gujarat Agricultural University.

Sr. No.	Name of the post	Pay Scale	Discipline
A.	Professor/ Research Scientist.	Rs. 1500-60-1800-100-2000-125/2-2500.	Agronomy, Plant Breeding, Agricultural Economics. Bio-Chemistry, Livestock Production & Management, Dairy Technology, Pharmacology, Nematology.
B.	Training Organiser	,,	(Extension Education)
C.	Programme Executive	,,	
D.	Associate Professor/Associate Research Scientist.	Rs. 1200-50-1300 60-1600-Assessment-60-1900.	Plant Pathology, Agril. Botany, Plant Breeding, Plant Physiology, Agronomy, Agril. Entomology, Agril. Extension Education, Horticulture, Dairy Chemistry, Dairy Engineering, Dairy Microbiology, Dairy Technology & Dairying, Agril. Engineering. (Farm Engineering, Process Engineering and Soil Water Engineering etc.) Pharmacology, Anatomy, Vety. Pathology, Home Science, Nutrition, Food Technology.
E.	Assistant Professor and its equivalents.	Rs. 700-40-1100-50-1300-Assessment-50-1600.	Agril. Economics, Physics & Maths, Agronomy, Agril. Chemistry Soil Science, Nutrition, Materiology, Plant Pathology, Extension Education, Horticulture, Agril. Statistics, Anatomy and Physiology, Bio-Chemistry (preference to M.Sc. candidate in faculty of medicine). Human Nutrition, Food and Nutrition, Home Management, Clothing and Textiles, Food Technology (for food processing and quality control) Food Technology (for food production), Home Science Education & Extension, Plant Breeding, Agril. Entomology.

Application forms and other details regarding qualification and experience can be had from the Registrar, Gujarat Agricultural University, Sardar Krushinagar-385506, Dantiwada Dist. Banaskantha on cash payment of **Rs. 2/-** or by sending crossed Indian Postal Order of equal amount issued in favour of 'Comptroller, Gujarat Agricultural University, Sardar Krushinagar along-with the self-addressed envelope (23 cm x 11 cm) affixed with **Re. 1.30** paise postage stamp. The last date for obtaining the application forms for the posts shown against Sr. No. A to E is **21.6.'82**.

The candidates already in the service of this University may apply through their respective officers on plain paper will six copies of bio-data without I.P.O. All candidates called for interview will have to attend the same at their own cost.

The last date for receiving applications complete in all respects for A to E is **30-6-82**.

Note : 1. Candidates should note that all the members of the staff are transferable to any of the four campuses of the University and to any of the research station in rural areas of the state.

2. The Selected candidates who will select on the posts mentioned in part E and for the post of Associate Professor in the discipline of Agril. Botany and Agronomy will have to join the duties at Sardar Krushinagar (Dantiwada) 385506 with immediate effect so the candidate who is not in a position to do so, he need not to apply.

3. Incomplete applications shall not be considered.

4. Only those who fulfil the qualifications should apply.

REGISTRAR

NORTH-EASTERN HILL UNIVERSITY

SHILLONG

ADMISSION NOTICE

Applications are invited for admission to P.U. (Agriculture) 2 years course in the College of Agriculture, Medziphema, Nagaland.

Students having passed Matriculation/High School Leaving certificate examination with Science as one of the subjects and those who will be appearing in 1982 may apply for admission.

Application forms may be obtained from the Principal, College of Agriculture, Medziphema, Nagaland-797 106 or from the office of the Assistant Finance Officer, North-Eastern Hill University, Shillong-793 001, Meghalaya on payment of **Rs. 5/-** (Rupees Five only) in the form of an Indian Postal Order drawn in favour of the "North-Eastern Hill University" Shillong by sending a self-addressed envelope of 28 x 13 cm. with **Re. 1/-** (Rupee One) of stamps affixed thereon. Candidates may also obtain the forms on cash payment of **Rs. 5/-** (Five) only at the University Counter, Shillong-1 or Principal's Office at Medziphema, Nagaland.

Certain numbers of seats will be reserved for nominees as sponsored by the State Government of Nagaland, Manipur, Tripura, Mizoram, Meghalaya and Arunachal Pradesh.

The completed application forms will be received by the Principal, College of Agriculture, Medziphema, Nagaland up to **10th July, 1982**.

Mrs. M.R. Mawlong
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 1/82-83

Dated, 2 June, 1982

Applications in the prescribed form are invited for the following posts in the approved scales of pay (viz. Reader—Rs. 1200-50-1300-60-1900/- and Lecturer—Rs. 700-40-1100-50-1600/-) plus dearness and other allowances, pensionary benefits according to the rules of the University.

A. **Department of Philosophy**
Reader—One post

B. **Department of Sanskrit**
Lecturer—One post

C. **Department of Foreign Languages**
Lecturer in French—One post

Minimum Qualifications

1. (a) A Doctor's Degree or published research work of an equally high standard, and
   (b) Consistently good academic record with first or high Second Class (*B in the seven point scale*) Master's Degree in the relevant subject(s) or an equivalent degree of a foreign University.

Desirable Qualifications
Specialisation or Proficiency

For A : Phenomenology / Existentialism / Experimental Psychology / Indian Philosophy (*Vedanta / Nyaya*)/Theory of Knowledge. Candidates should have a M.A. (*in* Philosophy / Sanskrit) /M.Sc. (*in Psychology*) *or equivalent* degrees.

For B : Sanskrit Grammar including its Philosophy.

For C : Any branch of French Literature including criticism.

The University Council may, on recommendations of the appropriate Selection Committee, waive any of the requirements *in* view of the candidate's specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally.

For application form and other information apply to the Registrar with self-addressed stamped (0'50p.) envelope (9″ x 4″).

Last date for submission of application with requisite fee of **Rs. 5/-** is **30th June, 1982.**

A.K. Chaudhuri
REGISTRAR

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRUSHINAGAR-385506.
DIST. BANASKANTHA

Advertisement No. 6/82.

The Gujarat Agricultural University is in need of an outstanding scientist having adequate academic and research background and experience in the field of Agricultural Entomology, particular*ly on cotton for a two years assignment* for a Chair for research in cotton.

The scientist is likely to be posted at Surat. No age limit is prescribed. Gujarat Agricultural University Employees can also apply. Persons who are not already holding the post of Prof. or its equivalent are not likely to be considered. Deserving persons will be paid a consolidated honorarium of Rs. 2250/- p.m.

The candidates applying for the post will have to send the I.P.O. of **Rs. 10/-** drawn in favour of Comptroller, Gujarat Agricultural University, Sardar Krushinagar, the candidates already in service of this University *should send their applications without* I.P.O. through proper channel.

The applications with six copies of biodata should reach the Registrar, Gujarat Agricultural University, Sardar Krushinagar (*Dantiwada*), Dist. Banaskantha (Gujarat) before **25-6-1982.**

REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

HISSAR

Advertisement No. 7/82

APPLICATIONS invited for following posts. Higher start outstanding qualifications, experience and achievements. Benefits of Contributory Provident Fund and leave etc. according to University Rules. Applications of the candidates *already* in *service must* reach through proper channel upto the fixed date. Applications on prescribed form (obtainable free by sending self-addressed unstamped envelope size 23 x 10 cms to *Assistant Registrar(F)*, HAU, (Hissar) accompanied by prescribed fee of **Rs. 10/-** in the form of Crossed Postal Order in the name of Assistant Registrar(G), HAU, Hissar payable at HAU Post Office, Hissar, should reach Registrar by **13-7-1982 (31-7-1982** for candidates residing abroad). The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be superscribed as "APPLICATION FORM FOR THE POST OF———."

1. Dean College of Sports : (One)
Essential

(i) Atleast second class B.A./B.Sc./B.P.Ed. followed by atleast second class Master's degeee in *Physical* Education. (ii) A doctorate degree in *Physical* Education. (iii) Experience of teaching degree classes for atleast 10 years. (iv) Administrative experience as Principal / Vice-Principal / Senior Faculty Member in a College of Physical *Education* or in *any senior position* in an Institution of higher education or Head of a Teaching Department of Physical Education of a University.

Desirable

(i) Research publications, (ii) Experience in competitive sports participation at the College/University/State level.

Note: One or more essential qualifica*tions relaxable for candidates* with outstanding attainments/ experience.

2. Professor of Agricultural Business Management: (One)

(i) Second class Bachelor's degree, (ii) Second class Master's degree in Business Management or equivalent P.G. training, (iii) Ph.D. in Business Management, with special reference to Agricultue or Animal Sciences, (iv) Ten years experience of teaching/research/ actual work in Business Management in relation to Agricultural Develop*ment out of which atleast five years* should be as Associate Professor or of equivalent rank.

3. Extension Scientist (Communication): (One)
Essential

(i) Second class B.Sc. (Agr.)/B.V. Sc. & A.H./B.Sc. (An. Sc.)/B.Sc. (Home Sc.). (ii) Second class M.Sc. in *Extension Education / Agricultural* Extension/Agricultural Communication. (iii) Ph.D. in Extension Education/ Agricultural Extension / Agricultural Communication. (iv) Five years experience of teaching/research/ extension in Extension Education preferably in Agricultural Communication.

Desirable

(i) Training in Agronomy and *Rural* Sociology. (ii) Rural background.

4. *Agronomist (Weed Control)*
(Leave Vacancy): (One)

(i) Second class B.Sc. (Ag.) *(ii)* Second class M.Sc. in Agronomy. (iii) Ph.D. in Agronomy. (iv) Five years experience of Research/Teaching/Extension in Agronomy/Weed Control.

5. Assistant Professor of Veterinary Anatomy: (One)

(i) *Atleast* second class at *Bachelor's* level. (ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the discipline concerned. OR atleast second class Master's degree followed by Ph.D. in the discipline concerned.

6. Technical Assistants: (Five)

(i) Ist class B.Sc. (Home Science) or *with* an O G.P.A. of 3.00/4.00. *Preference* would be given to candidates with M.Sc. (Home Science) subject to having B.Sc. (Home Science) Ist class or OGPA 3.00/4.00.

Note: 1. For posts at Sr. Nos. 2 to 4, one or more qualifications relaxable in case of candidates found otherwise outstanding.

2. *Special weightage will* be given to extension experience possessed by the candidates for posts in disciplines amenable to extension.

3. For post at Sr. No. 5, one or more qualifications relaxable *in case of candidates found* otherwise very suitable and persons who do not possess Ph.D. at the time of their selection shall not be allowed to cross the stage of *Rs. 1300/-* in the scale of Rs. 700-40-

1100-50-1600, till they complete their Ph.D.

4. Number of posts mentioned against each post is likely to vary.

5. For all the posts, reservation for different categories will be as per Haryana Government Rules.

PAY SCALES

Sr. No. of the post	Pay scale	Total emoluments at the initial of the pay scale (exclusive of House Rent).
1.	Rs. 1500-60-1800-100-2000-125/2-2500 (with unfurnished rent-free accommodation)	Rs. 2370/-
1&2.	Rs. 1500-60-1800-100-2000-125/2-2500.	Rs. 2370/-
3&4.	Rs. 1200-50-1300-60-1900.	Rs. 2325/-
5.	Rs. 700-40-1100-50-1600.	Rs. 1355/-
6.	Rs. 600-20-700 30-850/900-40-1100.	Rs. 872/-

REGISTRAR

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 5/82 83

Applications on the prescribed form, are invited for the following posts:

1. **Principal, University Polytechnic**
   Scale of pay: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.
   Qualifications
   1. Master's degree in Engineering/Technology.
   2. Atleast ten years experience of teaching.
   3. Preference will be given to those having some administrative experience in some Engineering Institution.
2. **Principal, Women's College**
   Scale of pay: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.
   Qualifications
   Candidates should possess high academic qualifications in Arts or Science. In addition sufficient teaching and administrative experience in senior posts of a Women's College.
   Note : **Only Women candidates need apply.**
3. **Principal, A. K. Tibbiya College**
   Scale of pay: Rs. 1500-60-1800-100-2000-125/2-2500 plus allowances.
   Qualifications
   I. Essential
   (1) Degree/Diploma in Unani Medicine from a University established by law or a Statutoty board / faculty/ examining body of Indian Medicine or equivalent.
   (2) Should have sufficient experience as Professor.
   II. Desirable
   "Administrative experience in a Medical College."
4. **Programmers (4 posts—Two permanent, One temporary but likely to become permanent and one leave vacancy), Computer Centre.**
   Scale of pay: Rs. 700-40-900-EB-40-1100-50-1300-plus allowances.

Qualifications

I. Essential

A Master's degree in Science or a Bachelor's degree in Engineering followed by atleast three years experience as Programmer or its equivalent at a Computer Centre.

OR

A Postgraduate Diploma or degree in Computer Science with at least two years experience as a Programmer or its equivalent at a Computer Centre.

II. Desirable

A higher degree in Computer Science or three years experience of developing and maintaining Computer software and operating System.

Job Requirements

1. To help in the operation of Computing System in multi-programming, batch and time-shared modes and Computer networking;
2. To provide assistance to users in Programme development;
3. To participate in the teaching and other academic programmes of the Centre;
4. To assist the Computer Centre in its operational aspects and any other duties that may be assigned from time to time.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single Second Class Railway fare only.

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees) on payment of **Rs. 2/-** in cash (to be deposited in the Cash Section, Finance Office, AMU) or through an Indian Postal Order payable to the Finance Officer, AMU, either personally or by sending a self-addressed envelope of 23 x 10 Cm. Last date for receipt of applications is **30.6 1982**. Incomplete applications and those received late may not be considered.

REGISTRAR

UNIVERSITY OF POONA

GANESHKHIND. PUNE-411 007

Centre of Advanced Study in Sanskrit

Applications are invited for the award of National Scholarships and the Research Associateships in the Centre of Advanced Study in Sanskrit, University of Poona, so as to reach the Director, Centre of Advanced Study in Sanskrit, not later than **1st of July 1982**.

(1) Two Research Associateship in the scale of Rs. 700-40-1100 (Tenure posts).

(2) Six National Scholarships of the value of Rs. 250/-, per month, for doing M.A. Course in Sanskrit.

The prescribed form of application can be had on payment of **Rs. 10** - plus **Rs. 1.50** postage for Research Associateship **and** by sending a self-addressed envelope (9" x 4") bearing 50 Paise postage stamps for National Scholarship.

S.P. Bhosale
REGISTRAR

UNIVERSITY OF NORTH BENGAL

Advt. 16/R-82. **Dated 7.6.82.**

Applications in prescribed forms are invited for the following posts, Viz: —

(A) Lecturer: (i) Botany-Post two (Specialisation in Botany).

(ii) Zoology—Post two (Specialisation in Zoology).

(B) Finance Officer—Post one.

The scale of pay for post (A) is Rs. 700-40-1100-50-1600/- and for Post (B) is Rs. 1500-60-1800-100-2000-125/2-2500/- with other allowances and benefits as per University Rules.

Minimum qualifications for posts (A): (i) A Doctor's degree or published research work of an equally high standard, and (ii) consistently good academic record with Ist or high second class (B plus in the seven point scale) Master's degree in the relevant subjects or an equivalent degree or a foreign University.

Provided that if the selection committee of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (ii) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

For the post (B): **Required Qualification** (i) Bachelor's degree with good academic record. (ii) Chartered Accountant or Cost Accountant or equivalent professional qualification OR Master's Degree in Business Administration with specialisation in finance. (iii) Seven years working experience in management of finance in a Government / University / Commercial Establishment. (iv) Age not less than 40 years. Relaxable in case of exceptionally qualified candidates.

All the posts are reserved for the candidates belonging to S.C./S.T. provided they fulfil the essential minimum qualifications laid down. In case qualified S.C./S.T. candidates are not available, the posts will be treated as unreserved and hence non-S.C./S.T. candidates may also apply.

Those who applied earlier against our Advt. No. 15/R-81 for the post of Finance Officer need not apply again as their cases would be considered.

Choice of selection committee may not necessarily be confined to those apply formally. No application except in prescribed application form will be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of **Rs. 5/-** (Rupees three for (S.C./S.T. candidates) in cash at the University Cash Counter or by sending a self-addressed stamped **Rs. 1.40** (One rupee and forty paise) envelope of 25 cm x 13 cm with crossed Indian Postal Order/ Bank Draft of **Rs. 5/-** (Rupees three for S.C./S.T. candidates) in favour of the University of North Bengal. Filled in application forms 6 (six) copies must reach the office of the Registrar, P.O. North Bengal University, Dist. Darjeeling, Pin 734430 on or before **10.7.82**.

REGISTRAR

UNIVERSITY OF DELHI

Advertisement No. Estab. IV/75/82 **Dated the 7th June 1982**

Applications on the prescribed form are invited for the following posts:

Department		Desigation
Faculty of Law		
Campus Law Centre	:	One Lecturer
Law Centre I	:	Two Lecturers
Law Centre II	:	Two Lecturers Three Part-time Lecturers
Chemistry	:	Research Associate
Economics	:	Research Associates
Delhi University Sports Council	:	One Assistant Director of Physical Education (Female)
Central Science Facility	:	Three Senior Technical Assistants (One reserved for Scheduled Caste & another for Ex-Servicemen)
Delhi University Computer Centre	:	Two Console Operators (One for Scheduled Caste & another for Scheduled Tribe) Note : "The candidates other than the category of Scheduled Caste/ Scheduled Tribe and who possess the required qualifications can also apply for these posts. However, their candidature will be considered in case no Scheduled Caste / Scheduled Tribe candidate is found suitable".
Botany	:	One Technical Assistant (Scheduled Caste) Note : Candidates belonging to unreserved category can also apply against the post. However their candidature will be considered only if no suitable candidate from the reserved category found suitable.

All posts, except that of Research Associate and Part-time Lecturer in Law carry D.A., C.C.A. and H.R.A. as admissible under the rules in force in the University from time to time.

The scales of the pay of the posts are:

Lecturer: Rs. 700-40-1100-50-1600.

Part-time Lecturer in Law: Rs. 500/- p.m. (fixed) for work-load ranging from 3-6 hours per week; Rs. 750/- p.m. (fixed) for work-load ranging 7-10 hours per week.

Note: Part-time Lecturers in Law will be appointed initially for a period not exceeding one academic year which could be renewed after each academic year with the total tenure of appointment of an incumbent not exeeeding 5 years.

Research Associate : Consolidated monthly emoluments as under:

A—Rs. 1100/- p.m. (Fixed)
B—Rs. 1300/- p.m. (Fixed)
C—Rs. 1500/- p.m. (Fixed)
(On the recommendation of the Selection Committee).

Assistant Director of Physical Education: Rs. 700-40-900-EB-40-1100-50-1300.

Senior Technical Assistant/Console Operator: Rs. 550-25-750-EB-30-900.

Technical Assistant: Rs. 425-15-500-EB-15-560-20-700.

Essential Qualifications

Lectureship in Law

Consistently good academic record with a first or high second class (B+) Master's degree in Law or an equivalent Degree of a foreign University in the subject concerned.

Explanation

Consistently good academic record would mean overall record of all assessments throughout the academic career leading to the Master's Degree, which should be at least B+ or high second class.

Part-time Lecturer in Law

Good academic record with first or high second class Bachelor's or Master's Degree in Law, practice at the Bar for atleast 5 years of which atleast 3 years should have been in the Trial Courts. Previous teaching experience desirable but not essential.

Research Associate

Consistently Good academic record with first or high second class (B+) Master's Degree or an equivalent degree of a foreign University in the subject concerned.

Note: Initial appointment will be for a tenure period of three years extendable by another two years only. In no case the tenure will extend beyond 5 years in all.

Assistant Director of Physical Education

Master's degree in Physical Education.

OR

A Master's degree in Arts/Science with a Post-Graduate Diploma in Physical Education.

Senior Technical Assistant

Diploma in Engineering or Electronics/B.Sc. with 3 years experience in operation of modern instruments and their repair and maintenance/ assistance in R&D instrumentation (candi-

(Continued on page 416)

SHIVAJI UNIVERSITY
KOLHAPUR
Advertisement No. 10

Applications are invited for the following posts :-

1. **Professor** : One
2. **Reader** : One
3. **Lecturer** : Two

in STATISTICS : Having specialised in one or more of the following fields :

(1) Industrial Statistics, (2) Design of Experiments, (3) Stochastic Processes, (4) Information Theory and Statistical Inference, (5) Operations Research, (6) Statistical Quality Control, (7) Theory of Reliability.

4. **Lecturer** : One in Journalism.

Pay Scale

1. **Professor** : Rs. 1500-60-1800-100-2000-125/2-2500
2. **Reader** : Rs. 1200-50-1300-60-1900.
3. **Lecturer** : Rs. 700-40-1100-50-1600.

Qualifications

1. **Professor** : An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at Doctoral level, or An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. **Reader** : Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials. About five years' experience of teaching and or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

3. **Lecturer** : (a) Doctor's Degree or published work of an equally high standard; and (b) Consistently good academic record with first or higher second class (B+) at Master's Degree or equivalent Degree of a Foreign University.

4. **Qualifications** : for the Post of **Lecturer in Journalism** :

Essential

1. Good academic record with atleast second class Master's degree in the subject (Communication Mass Communication/Journalism etc.) from an Indian University or an equivalent degree from a foreign university.

OR

At least second class (C in the seven point scale) Master's degree in Social Sciences/Sciences/Humanities with at least a second class Bachelor's degree or Diploma in Journalism from a recognised Indian University Postgraduate diploma from a recognised National Institute.

Desirable

(i) Teaching experience at College or University level.

(ii) Work experience in any area of Mass Communication (Newspaper Magazine, News Agency, Public Relations, Advertising, Radio or T.V. Journalism etc.)

Age Limit

Candidates applying for the post of Professor should ordinarily be below the age of 50 years, those applying for the post of Reader should ordinarily be below the age of 45 years, those applying for the posts of Lecturers should ordinarily be below the age of 35 years. However, this age limit may be relaxed in the cases of deserving candidates.

One post of Lecturer in Statistics has been reserved for the candidates belonging to the Backward classes.

Full details of this advertisement will be supplied on request with the application form.

Prescribed application forms (seven copies) can be had from the University Office. Desirous candidates are requested to send Indian Postal Order of **Rs. 3.50** alongwith a self addressed envelope (Size 28 cm x 12 cm.) with a postage worth **Rs. 1.90** paise.

Seven copies of applications alongwith necessary enclosures attached to each copy of the application should reach the Registrar, Shivaji University, Vidyanagar, Kolhapur 416 004, on or before the **10th July 1982.**

R.V. Chavan
REGISTRAR

MAHARSHI DAYANAND UNIVERSITY
ROHTAK
Advt. No. 3/82

Applications on the prescribed forms for the following posts are invited (through proper channel in case of those already in employment) :-

1. **Deputy Registrars**

(2) Rs. 1500-60-1920-80-2000.

Qualifications

(i) A Second Class Master's Degree LL.B Degree, relaxable in Division/Class in the case of internal candidates where the record of service is exceptionally good.

(ii) 10 years' experience out of which 5 years' as Assistant Registrar in a University/Examining Body or 5 years' as Principal of a Degree College.

2. **Medical Officer**

(1) Rs. 940-40-1100-50-1400-EB-60-1700-EB-75-2000 plus N.P.A. as per Haryana Govt. rules

Qualifications

M.B.B.S. or an equivalent Degree from an Indian or a foreign University. Preference will be given to experienced hands. Retired hands who are otherwise suitable, can be considered.

3. **Laboratory Supervisor in Physics**

(1) Rs. 700-30-850/900-40-1100-EB-50-1250.

Qualifications

Matric with Science, preferably Science graduate with 5 years' experience as Head Laboratory Assistant. In case of M.Sc. in Physics with at least 2nd Division experience may be relaxed.

The candidates for the posts of Deputy Registrars and Medical Officer who applied in response to Advt. No. 1/81 need not apply. Similarly the candidates for the post of **Laboratory Supervisor in Physics who applied in** response to Advt. **No. 5/80 need not** apply. Their existing applications will be considered.

Benefit of contributory provident fund admissible as per University rules. Reservation for Ex-Servicemen/B.C./S.C./S.T candidates as per rules and no application fee from them.

Higher start admissible in deserving cases and for internal candidates. Knowledge of Hindi essential for all posts.

Applications on prescribed forms with attested testimonials and crossed postal order(s) for **Rs. 10/-** in favour of the Chief Accounts Officer payable at Post Office, Rohtak, be sent to the Registrar by **30-6-82**. The applications form cans be had from the Asstt. Registrar (General) on payment of **Rs. 2/-** at the counter and **Rs. 3/-** by ordinary post.

REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY
HISSAR
COLLEGE OF SPORTS

It is proposed to form an Alumni Association of Ex-students of College of Sports who have completed the degree. In case you are our Ex-student and completed the degree from this college, please let us have your latest address for further reference.

T.C. Kundu
DEAN

HARYANA AGRICULTURAL UNIVERSITY

Corrigendum to Advertisement No. 4/82

A. The following posts are withdrawn :

  1. Associate Director (Farm Advisory Service).
  2. Joint Director (Extension)
  3. Senior Medical Officer.
  4. Assistant Professor Home Science Extension Education.
  5. Assistant Vegetable Botanist.

B. The qualifications for the post of Extension Specialist (Home Science) (Post at Sr. No. 8) may be read as under :

Essential

(i) Second class B.Sc. Home Science. (ii) Second class M.Sc in any field of Home Science. (iii) Ph.D. in any field of Home Science. (iv) Five years experience of extension/teaching research in Home Science. **Desirable** : Experience in organising women's programmes in rural areas. The last date for receipt of applications for this post will be **22-6-1982.**

C. Discipline of post at Sr. No. **14** (Assistant Professor Botany) may be read as Plant Physiology instead of Botany.

REGISTRAR

NOTIFICATION

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY : HYDERABAD :

ANDHRA PRADESH

B. TECH /B. ARCH. ADMISSIONS 1982-83

The Jawaharlal Nehru Technological University offers the B. Tech. Degree Courses in Civil Engineering, Electrical and Electronics Engineering, Mechanical Engineering and Electronics and Communication Engineering of 4 year duration in its Constituent Colleges at Anantapur, Kakinada and Hyderabad and B. Arch. course of 5 year duration at the College of Fine Arts and Architecture, Hyderabad. *Admissions will be made Course-wise*, as per the rules of the University. Candidates have to apply separately for each course by paying the requisite fee as stated in the information to candidates supplied with the application form.

A set of application forms for admission to the courses mentioned above may be had from the Principals of the following Constituent Colleges, either in person or by post, on payment of Rs. 5/- per set through a crossed demand draft on any bank drawn in favour of "THE REGISTRAR, JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD" payable at Hyderabad.

1. The Principal, College of Engineering, Anantapur-515 002.
2. The Principal, College of Engineering, Kakinada—533003.
3. The Principal, Nagarjunasagar Engineering College, Masab Tank, Hyderabad-500 488.
4. The Principal, College of Fine Arts and Architecture, Masab Tank, Hyderabad-500 489.

The requisition for application form by post should be accompanied by a self-addressed and stamped (Rs. 2/-) envelope (25cm x 10 cm) along with the demand draft as stated above. The envelope should be superscribed 'Application forms for admission to B. Tech./B. Arch. Courses'.

Application forms will be available for sale from the respective Principals from **June 5, 1982**.

Applications completed in all respects should reach THE DIRECTOR OF EVALUATION, JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, NAGARJUNASAGAR ENGINEERING COLLEGE CAMPUS, MASAB TANK, HYDERABAD-500 488 either in person or by post on or before 5.00 P.M. on **July 3, 1982.**

No application, in person or by post, will be received after the last date.

The criterion for consideration for admission into B. Tech. courses is the rank obtained at the Common Entrance Examination 1982-83, to be conducted by the Convenor, Common Entrance Examination Committee, Andhra University, Waltair on **6.6.1982** and a pass in Intermediate Examination or its equivalent or Diploma in Engineering conducted by State Board of Technical Education, A.P. Hyderabad. In addition to this candidates seeking admission into B. Arch. Course have to appear for the Aptitude Test to be conducted by the University, and the criterion for consideration for admission into this course will be the rank obtained on the aggregate of the marks at the Common Entrance Examination and the Aptitude Test.

REGISTRAR

GURUKULA KANGRI VISHWAVIDYALAYA

HARDWAR

Applications in duplicate on plain paper with copies of testimonials are invited for following posts, so as to reach the undersigned by name alongwith postal order for **Rs. 10/-** for posts (1-3) and **Rs. 5/-** for other posts, upto **31-7-1982.**

1. **Professors**
   (Vedic Studies Sanskrit, Ancient Indian History & Culture, Philosophy). Grade : Rs. 1500-60-1800-100-2000-125-2500).

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Scholar with established reputation who has made significant contribution to knowledge.

2. **Reader**
   (Philosophy) : Grade : Rs 1200-50-1600-60-1900.

Qualifications

Good academic record with a doctoral degree of equivalent published work. [illegible] ing actively engaged in [illegible] or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these were as lecturer or in an equivalent position.

3. **Lecturer :**
   (English) Grade : (Rs. 700-40-1100-50-1600).

Qualifications

(a) A Doctorate's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage will be given to M. Phil or equivalent degree or research work of quality) may be appointed he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Note : 1. Female Candidates need not apply.
2. Those who had applied earlier for posts 2, 3 and 4 need not apply again.
3. Qualifications relaxable for experienced persons.

Dharam Pal Hira
REGISTRAR

ASSOCIATION OF INDIAN UNIVERSITIES

Applications are invited from College/University Teachers for admission to a BASIC LEVEL CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS. The duration of the course is six months (1st August, 1982 to 28th February, 1983). The course is being offered from different Regional Centres like Delhi, Bombay, (Madurai, Shillong and Hyderabad) and will be conducted and coordinated by the Research Cell of the Association. A personal 'contact programme' at the centres is also planned.

Requests for prospectus and prescribed application forms, accompanied by a crossed Indian Postal Order for **Rs. 5/-** drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (80 paise) should reach the undersigned. The last date for the receipt of applications in the prescribed form is **June 30, 1982** for non-sponsored candidates and **July 15, 1982** for sponsored candidates.

Project Director (Examinations)
Association of Indian Universities,
6, DDA Building, Nehru Place, New Delhi-19

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JULY 1, 1982

Dr. J. S. Kanwar, Director of Research, International Crop Research Institute for Semi-Arid Tropics, Hyderabad, delivering the convocation address at the Punjab Agricultural University, Ludhiana.

MANIPUR UNIVERSITY

CANCHIPUR : IMPHAL

Advertisement No. 3

Applications are invited for the following posts

1. Professor in Political Science
2. Associate Professor in Chemistry (Physical)
3. Assistant Professor in Chemistry (Inorganic)
4. Assistant Librarian.
5. Assistant Director of Sports.

Post No. 1.

Essential qualification

(a) Consistently good academic record with at least a high 2nd Class Master's Degree in Political Science or an equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard; and

(c) About ten years' teaching and/or research experience.

Desirable qualification

Considerable experience of guiding research in the field.

Post No. 2.

Essential qualification

(a) Consistently good academic record with at least a high 2nd Class Master's degree in the subjects or an equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard; and

(c) About five years' experience of teaching and/or research experience.

Desirable qualification

Some experience in guiding research in M.Phil/Ph.D. levels.

Post No. 3.

Essential qualification

(a) Consistently good academic record with at least a high 2nd Class Master's degree in the concerned subjects or its equivalent qualifications from an Indian/Foreign University; and

(b) A doctor's degree or published work of an equally high standard.

Desirable qualification

(a) Some experience of teaching

(b) High aptitude for, and ability to guide research in the concerned subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work, is of very high standard, it may relax any of the qualification prescribed in (a) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

Post No. 4.

Essential qualification

(a) First or Second Class B.A./B.Sc./B.Com. degree plus a first or second class M.Lib. Sc. degree

OR

First or second class M.A./M.Sc./M.Com. degree and a first class or second class B.Lib. Sc. or a diploma in Library Science.

Post No. 5.

Essential qualifications

(a) Master's Degree in Physical Education

OR

Bachelor's Degree in Arts/Science with a post-graduate diploma in Physical Education.

(b) **Desirable**

Should have previous administrative experience of organising games and sports at University level. Proficiency in games upto Inter-University and National level.

Scales of Pay

Professor : Rs. 1500-60-1800-100-2000-125/2-2500/-

Associate Professor : Rs. 1200-50-1300-60-1900/-

Assistant Professor: Rs. 700-40-1100-50-1600/-

Assistant Librarian : Rs. 700-40-1100-50-1300/-

Assistant Director of Sports: Rs. 700-40-1100-50-1600/-

Plus usual allowances as admissible to the members of the staff of the Manipur University.

Benefits of G.P.F.-cum-Pension-cum-Gratuity/C.P.F.- cum - Gratuity are available as per University Rules.

Araa of Specialization

Post No. 1. Specialization in the field of Political theory including political analysis.

Post No. 2. Specialization in Physical Chemistry.

Relaxation of any of the qualifications may be made (a) in favour of persons of eminence or of high academic/Professional distinction and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

Persons already in employment should route their application through proper channel. Due consideration will be given to candidates belonging to Scheduled Caste/Scheduled Tribe at the level of Assistant Professor.

Second class railway-fare plus the bus-fare for the roadlink (both-ways) will be paid to candidates invited to appear for interview from outside by the shortest route subject to production of railway/bus receipt. Applications addressed to the Registrar in plain papers and in duplicate containing the following particulars should reach the Registrar, Manipur University, Canchipur, Imphal-795003 latest by the **24th July, 1982** furnishing all the relevant information such as their names; date of birth; marital status; nationality; postal and permanent addresses; father's name and address; academic and professional attainments; full details of (a) publication, and (b) research projects undertaken; details of visits to foreign countries; and the names and addresses of at least two persons will be acquainted with the candidates a professional work who should also be requested by the candidate to forward to the Registrar, Manipur University, confidential report concerning the candidate.

S. Sarat Singh
REGISTRAR

UNIVERSITY NEWS

VOL. XX No. 13 JULY 1 1982

A Fortnightly Chronicle of Higher Education Price Re. 1.25

IN THIS ISSUE

The Racket of Representations 426
A Study of the Reappearance Cases of the Madras University 428
Indological Studies at universities in the FRG 431

Convocation

Future directions in medical education 433
R & D aspects of agriculture 435

Campus News

Seminar on the Sociology of literature 439
Training for Uganda students in India 439
Triple benefit scheme for teachers of Jammu 440

Agriculture

KKV develops improved farm tools 440
UAS hosts national workshop on oil seeds 441
PAU orientation course for public analysts 441

News from Abroad

New technique for liquid phase separation 442
Turkish scientists fight cancer with grapefruit juice 442
Research in Progress 443
Theses of the Month 444
Current Documentation in Education 448
Classified Advertisements 449

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

Reforming Legal Education

Much has already appeared in the Press, both for and against, the new rules announced by the Bar Council of India which are to take effect from the year 1982-83. The Secretary of the Bar Council of India states that the proposals for improving the standards of legal education have been under the consideration of the Bar Council of India for 5 years now and the Bar Council has been in consultation with the universities over this period. The new set of rules adopted "after mature consideration" were given out sometime in May 1982. That is to say, barely a few weeks before the start of the new academic session when the new rules are to become operative.

In its new rules the Bar Council of India has taken care to prescribe norms for law colleges, lay down standards of entry and duration of course, qualifications for teachers in law, working hours, a syllabus for the course, physical facilities in a college, library facilities and the like. Besides, it has also armed itself with powers to approve affiliation granted to a college by a university. "No college started after the coming into force of these rules shall impart instruction in a course of study in law for enrolment as an advocate unless its affiliation has been approved by the Bar Council of India". "An existing law college shall not be competent to impart instruction in a course of study in law for enrolment as an advocate if the continuation of its affiliation is disapproved by the Bar Council of India". (Rule 20(1), 20(2).

Probably the analogy is with the powers enjoyed by the Medical Council of India. If the Medical Council of India has powers of inspecton, recognition and de-recognition why not the Bar Council of India ?

That the state of legal education in the country is not a happy state is well known. In early 60's, and I quote from an official report, "....except in South India, where Governments and universities have exercised considerable self-restraint, a large number of ill-equipped and poorly staffed Law colleges came into existence which were by-words for slackness, irregularity and indiscipline. This is not to say that there have not been good law colleges and excellent teachers of Law. But on the whole it has been a sorry state of affairs which in recent times became worse along with the deterioration of standards in all educational institutions". While the position of several law colleges must have improved since, the improvements could not have kept pace with expansion.

This is not the first time that the Bar Council has attempted a reform. In mid 60's the duration of the law course was increased from 2 to 3 years after graduation. With the addition of one year for the Bachelor's degree course in the pattern of 10+2+3 the average student of law took two more years to get the Bachelor's degree in law. To that extent the student has spent more, learnt more and was more mature when he entered the legal profession. The new rules have lessened the duration by one year by prescribing a 5-year course after 10+2.

The universities have to enforce the norms prescribed by the Bar

Council of India if the colleges affiliated by them (the universities) are not to be "derecognised" by the Bar Council of India. Obviously for the improvements prescribed by the Bar Council of India much funds are needed. Will the UGC and the State Governments have funds to permit this additional dispensation over and above whatever has already been committed ?

Some years ago the Bar Council of India was approached at least by one university to permit Correspondence Courses being started for the first year of ths 3-year LL.B. course. This was not agreed to by the Bar Council.

It is estimated that about 30% of those qualifying with a degree in law enter the profession. Unlike the medical profession where every doctor whether employed in a hospital or is practising as a private doctor has to treat, in law the 70% not entering the profession do not and cannot practise the profession. This is a vital difference. Any analogy drawn therefore between the Medical Council of India and the Bar Council of India will need to be viewed in this perspective. The Bar Council of India is after all concerned only with regulating standards for purposes of enrolment as Advocates.

The university community needs to examine these new provisions although consultations might have been held earlier. The objectives of both the university and the Bar Council of India are the same, after all. What should be the relations between statutorily established professional associations and universities is the question.

—Editor

The Racket of Representations

D. P. Verma*

Of the many abuses associated with the examination system in the universities, the one which is not so perceptible enough, but which does provide some cause for concern, is the increasing number of complaints by the teachers and the students against many of the question papers set in the university examinations each year. This malady is to be found not only among the under-graduate students but has percolated to the post-graduate students as well, with the teachers too readily supporting the students at each level.

In the class room as also during the process of preparation for the examination, the stress is on the selective portions of the syllabi or courses of reading prescribed. The students have come to expect the paper-setter to strictly confine his job to suit their 'requirements.' It may be surprising to note but it is a fact that one of the major demands recently projected by the students was that questions set should be straight ones and that these should deal with only one aspect of the matter or subject, and that no question should meander sideways. If a question paper is set for an examination with a view to test some intelligence of the students as also the quantum of the 'course-coverage' done by them, then, more often than not, the students are 'up in arms' against the paper-setter for the 'great wrong' done by him. If something is really wrong with a question-paper, no one would deny redressing the genuine difficulties of the students. But when 'complaint-making' becomes almost a general practice in each examination and for most of the question papers, then it does call for some thinking, some review of the provisions that exist in the universities on the subject, because there are reasons to believe that a bonafide provision is being abused. In a university more than fifty complaints were received against the various question papers (and this is not a small number by any means) in one annual examination and the plea taken mostly was that some questions or parts thereof were not strictly in conformity with the syllabi. This stream of complaints is becoming perennial, with its level mounting up. Hardly anyone is prepared to admit the faulty methods of instruction and much more faulty methods of preparing for the examinations.

The complaints against question-papers, in accordance with the rules and regulations are forwarded by the Heads of Institutions within a specified period to the university. These complaints are looked into by the respective Boards of studies. And thereby hangs a tale. Some of the meetings of the Boards are preceded by intensive canvassing; the teachers do it and even the guardians and parents of the students do it. It is all an inspired affair. And what emerges out of some of these meetings is that the "genuineness of the hardship" caused to the students by the errant examiner is upheld and 'justice' is pronounced that each student who has taken the examination be awarded so many marks in addition to what he has secured.

The present system of examination in many of our universities does not inspire much confidence. Its credibility has already been considerably eroded. And when some in-built mechanism is abused to further dilute its reliability, then one has surely to think of steps to stem the fast creeping rot. It is not the regulations or the rules that are bad, but the blatant abuse to which they are put to, brings slur on the system as such. One can well appreciate the difficulties faced by a set of examinees when a question paper is off the prescribed syllabi or when the questions are set in manner that these cannot be understood by the students correctly and properly. But when complaints start pouring in about the question papers, even in optional papers like Hindi and Punjabi, and the Boards think it fit to recommend award of some marks, almost gratis, to the examinees, then the conclusions are so obvious. Can one beat a complaint by the post-graduate students taking their examination in the subject of English that the language used by the examiner in a question-paper was not comprehensible to them ?

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A new concept of a right has almost emerged in the world of higher education and it is the right of the students to be examined the way they like it. Any deviation leads to protests, sometime protest walk-outs. Interestingly the latter course is adopted by the senior post-graduate students, for they go about with confidence that any abandoning of the examination in a paper or two would not adversely affect their year or career, for they have the means with them to get a re-examination fixed and arranged. Everything in a question paper should be within the four-corners of the prescribed syllabus, howsoever old it may be; anything that tends to test or seeks their knowledge on any latest development in the field is regarded as outrageous. The teachers, particularly in the affiliated colleges, swear by the syllabus. It has become something like the Bible and any 'disrespect' to it in any form is regarded as highly 'sacriligeous.' Some saner elements among the faculty do lament such an attitude but then their counsels hardly count.

There is an urgent need to review the composition and functions of the Boards of Studies in the universities—particularly those dealing with under-graduate courses where there is preponderance of the teaching staff from the affiliated colleges. The Boards are generally constituted on the basis of elections and this in itself is sufficient to ensure that the 'talent' is kept out of them. Electing people to prescribe courses of study is something that does not seem to be academically sound at all. Are persons to be assigned this job on the basis of votes collected by them or on the basis of their academic achievements or distinctions made and their established capacity to keep abreast of the latest developments and changes in their respective fields of knowledge ? Learning outmoded courses at the hands of those who have forsaken learning long years ago – that is what, more or less, sums up the position at the undergraduate level in most of our institutions.

The casualness with which teaching is being taken in the so-called institutions of higher education is just appalling. A teacher, always very vigorous and vocal in voicing the cause of his community in matters of pay-grades and the like was once embarrassed by some vigilant students when they told him right in the face that all that he was seeking to dictate in the class-room was nothing but a verbatim reproduction of the material available in a particular 'guide' or 'cheap note' available in the market. What an unkind cut, for the poor fellow was always busy fighting the 'cause' and had no time to consult any so-called standard text books. Gresham's law is not only operative in the market in the matter of coins, it has become equally operative in educational institutions where 'cheap guides or notes' have largely driven away good and standard books from circulation and these lie mostly gathering dust on the shelves of the libraries—if at all these are there.

Teachers have come to believe that it is the path of least resistance that is fruitful and beneficial. Any other course is fraught with dangers. That is why there is no attempt on their part or that of the heads of institutions to give proper direction to the students and make them realise their true objective and goals. As a matter of fact, for the large majority of the students in our colleges, there is hardly any goal or objective, except having a degree to secure some job. If their energies and time could be channelled to some other useful vocations and activities, it would yield better dividends to the society. It is only a handful of students who really are interested in pursuing their studies in the proper sense of the term and it is they who make the mark and finally go to various assignments of importance in diverse fields.

As stated earlier, the present system of examination is bad enough. It has been made worse by such moves. Some damaging and academically unsound policies formulated by the governments and managing bodies of the colleges, like stoppage of annual increments of teachers if the results of their classes are below the university pass percentage, have certainly contributed to the growth of such unseemly activities. The sooner such erroneous policies are scrapped, the better it would be for the health and environment of the system of higher education. The need is for some incentives and encouragement rather than creating an atmosphere of concern, anxiety and fear.

There is yet another aspect of this 'racket of representations' against 'question-papers' in the university examinations. Teachers in the colleges and the universities, like other people, have their sons and daughters studying in various courses, and they take the examinations. Sometimes they need an extra dose of help so that they could compete with others in matters such as admissions to professional courses and the like. In furtherance of Bentham's *maxim* of securing the "greatest good of the greatest number," if some little gain accrues to one's own kith and kin, then hell with those who grudge it.

It may not be wrong to say that the dimensions of the rot that had set in, in the educational system and its deleterious effects are distressing, and there is hardly any light gleaming in from anywhere. ☐

A Study of the Reappearance Cases of the Madras University

K. Gunasekaran*

Introduction

Research in the area of Examinations has shown that no two examiners agree in awarding marks to a script and also an examiner disagrees with himself at different points of time. As University examinations cannot be dispensed with, all possible efforts are being taken to keep the inconsistency of the examiners in valuing the scripts at the minimum level possible. Of the steps taken, the provision for reappearing in the University Examination is one. As per this provision, even if a student has passed in a paper he is given one more chance to write the University examination in the paper so as to improve his previous performance. The better of the two marks/grades viz., the original or the one obtained on reappearance is taken into account for the final classification. The University of Madras is one among the many Universities which has introduced this provision. This provision has been introduced at the Under-graduate level and Post-graduate levels from the Academic year 1977-78. As on date, three batches of Post-graduate students have availed this provision. It is common knowledge that any innovation does not stop with introducing it but also involves in evaluating the effectiveness of the innovation introduced so as to bring about changes, if it is warranted. Keeping this in view, the results of three batches (1977-79, 1978-80 and 1979-81) of Post-graduate students of Arts, Science and Commerce courses who have availed this provision were studied to evaluate the effectiveness of this provision. Hence, this study.

In the M.A., M.Sc. and M.Com. (Semester) courses, grading system as suggested by the UGC (1976) is being adopted to report the performance of the students. The objectives of the study are to (a) compare the results of the reappearance cases among the three batches of candidates viz., 1977-79, 1978-80 and 1979-81; (b) compare the percentage of beneficial cases among the different examinations over the various batches of candidates, and (c) find the effect of reappearance on OGPA and compare it among the three batches.

Analysis and interpretation

To study the above objectives, the results of all candidates of the three batches who had reappeared in the University examination were considered. Before proceeding further, the terms that are used in this study are explained.

Reappearance case : As a candidate can apply for reappearance in more than one paper, reappearance in each paper is considered as a 'Reappearance Case'. Due to this definition, the number of 'reappearance cases' may be more than the number of candidates who had reappeared.

Original grade : The grade that is obtained by a candidate before applying for improvement is called as 'original grade'.

Reappearance grade : The grade that is obtained on reappearance is called as 'reappearance grade'. A 'reappearance case' is referred to as a '*beneficial case*' if the reappearance grade' is higher than the, 'original grade'.

Comparison of the results of reappearance cases relating to three batches

At the outset it may be mentioned that 139, 199 and 318 candidates of M.A., M.Sc. and M.Com. (Semester) courses corresponding to 1977-79, 1978-80 and 1979-81 batches had availed the reappearance provision. In terms of reappearance cases, the number was 207, 319 and 573 for the corresponding period. The percentage of the candidates reappeared with reference to the total number of candidates who underwent the course in the three batches was found to be 5, 7 and 7 respectively. The above figures show that the number of candidates reappearing in the University examination is on the increase. This increasing trend is reflected in the reappearance cases also. The results of the analysis of the reappearance cases done is reported in Table—I.

TABLE—I

An analysis of the results of reappearance cases relating to 1977-79, 1978-80 and 1979-81 batches

Particulars	1977-79 batch	1978-80 batch	1979-81 batch	Total
No. of cases that got improved grades on reappearance	136 (66%)	222 (70%)	384 (67%)	742 (68%)
No. of cases that got the same grades on reappearance	51 (24%)	47 (14%)	112 (20%)	210 (19%)
No. of cases that got grades lower than the original grade	20 (10%)	50 (16%)	76 (13%)	146 (13%)
Total	207	319	572	1098

Studying the above table, it may be interpreted that the percentage of beneficial cases has registered an increasing trend. On an average 2 out of 3 cases benefit on reappearance. Hence, it is a boon to the students who wish to improve their performance.

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Comparison of reappearance cases examination-wise

Table—II gives the comparative distribution of the reappearance candidates/cases relating to M.A., M.Sc. and M.Com. Degree Examinations among the three batches.

TABLE II

Comparative Distribution of Reappearance Candidates/Cases Examination-wise

Particulars	Examination	1977-79 batch	1978-80 batch	1979-81 batch
No. of candidates reappeared	M.A.	50	104	141
	M.Sc.	69	63	110
	M.Com.	20	32	67
	Total	139	199	318
No. of candidates who improved on reappearance	M.A.	38	88	100
	M.Sc.	54	49	78
	M.Com.	18	21	41
	Total	110	158	219
Percentage of candidates who improved on reappearance	M.A.	76	85	71
	M.Sc.	78	78	71
	M.Com.	90	66	61
	Total	79	79	69
No. of cases that reappeared	M.A.	64	180	253
	M.Sc.	105	84	199
	M.Com.	38	55	121
	Total	207	319	573
No. of cases that improved on reappearance	M.A.	43	136	172
	M.Sc.	63	60	140
	M.Com.	30	26	73
	Total	136	222	385
Percentage of cases that improved on reappearance	M.A.	67	76	68
	M.Sc.	60	71	70
	M.Com.	79	47	60
	Total	66	70	67

Studying Table—II it is clear that the number of candidates of M.A., M.Sc. and M.Com. Degree courses applying for reappearance is on the increase from 1977-79 batch. Consequently, the number of reappearance cases also shows an increasing trend in all the three examinations. Of the examinations, M.A. accounts for nearly 50 per cent of the total candidates applying for reappearance. The next place goes to M.Sc. Degree Examination. Studying the percentage of candidates who have improved on reappearance, it is found that in all the three examinations (M.A., M.Sc. and M.Com.) the results were comparatively better in respect of 1978-80 batch than the other two batches. Same is the case in respect of reappearance cases also. Further, it may be observed that the number of beneficial cases are more in the case of M.A. Degree Examination in all the three batches. The Overall increase in the number of cases that benefitted on reappearance over the three batches is largely due to M.A. degree examination. It was found that apart from M.Com. students, in all the three batches the students of Economics and English Literature under M.A., and Physics, Chemistry and Zoology under M.Sc. utilised the provision for reappearance to a great extent. The maximum number of cases (87) among all the subjects over the three batches was found in M.A. Economics.

Effect of reappearance on OGPA

As the better grades obtained on reappearance is taken into account for the final classification of the students (i.e., OGPA under the grading system), the effect of the reappearance grades on OGPA was studied for all the three batches. To study the effect of reappearance a pair of OGPAs—one based on the original grades and the other based on the improved grades—were calculated in respect of all the beneficial cases. Based on the difference between the two OGPAs, statistics like maximum, minimum, average, median and modal increase were worked out and is reported in Table III.

TABLE III

A Comparative Analysis of the Effect of Reappearance on OGPA

Batch	No. of candidates reappeared	No. of candidates benefited on reappearance	The various statistical values calculated on the difference between the OGPAs obtained on the basis of the original and improved grades				
			Max. increase	*Average increase*	*Minimum increase*	*Median increase*	*Modal increase*
1977-79	139	110	0.43	0.11	0.03	0.10	0.13
1978-80	199	158	0.40	0.10	0.03	0.08	0.08
1979-81	318	219	0.44	0.10	0.01	0.08	0.04

Studying Table-III, it may be interpreted that there is no appreciable difference in the average and median increase in OGPA considering all the batches together. *It may be noted that the maximum* increase in OGPA that a candidate has obtained on reappearance has gone upto the tune of 0.45 grade point in 1979-81. But in the case of modal value it has come down from 0.13 grade point in 1977-79 to 0.04 grade point in 1979-81. That is, even though many number of candidates are benefited on reappearance over the years, the value of the most common increase in OGPA is found to be dwindling. In other words, the magnitude of increase in OGPA in most of the reappearance cases is found to be declining over the three batches. On the whole it may be observed that the effect on OGPA due to reappearance is better in 1977-79 batch when compared to the other batches.

Conclusions

The conclusions of this study are summarised below:

(a) The number of candidates reappearing in the University examination shows an increasing trend (from 139 to 318) over the three batches. Consequently, the number of reappearance cases has increased from 207 in 1977-79 to 572 in 1979-81. In consonance with the increase in the number of reappearance cases, the number of beneficial cases have also increased from 136 in 1977-79 batch to 384 in 1979-81 batch. The percentage of beneficial cases with reference to the number of reappearance cases ranges from 66 to 70. That is roughly 2 out of every 3 reappearance cases are benefited.

As the number of reappearance cases is on the *increase it may be concluded that this provision is* getting popular among the students. Further, there is a very high rate of success (68%) in getting higher grades on reappearance which will make the students avail this opportunity more often in the coming years. The main objective of introducing this provision viz., providing one more chance for the students to show their real potentialities, which could not be shown on the earlier occasion due to one reason or the other, has been fulfilled.

(b) Studying the reappearance candidates/cases examination-wise, it is found that the M.A. Degree examination has contributed nearly 50 per cent of the *total reappearance candidates/cases*. Also, the number of beneficial cases are more in the case of M.A. Degree Examination in all the three batches. It was found that the students of Economics and English Literature under M.A. and Physics, Chemistry and Zoology under M.Sc. are utilising the provision for reappearance in greater number than the other subjects.

(c) The maximum increase in OGPA due to reappearance has reached its peak in 1979-81 batch viz. 0.45 grade point. But, there was no appreciable difference in the average and median increase in OGPA considering all the three batches. It was found that the value of the most common (modal value) increase in the OGPA was declining over the years from 0.13 to 0.04 grade point. It was noted that comparatively the reappearance cases had better impact on OGPA in 1977-79 batch than the other batches. ☐

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Indological Studies at Universities in the FRG

J. N. Sharma*

Five centuries of Indo-German contacts form the traditional backdrop of cultural relations between India and the Federal Republic of Germany. The first undisputed evidence of cultural ties is a German translation of a collection of Indian Fairy Tales, published in the last quarter of the fifteenth century. Indo-German contacts further deepened in the following two centuries. The year 1791 marked an important milestone with the publication of a quatrain on Shakuntala by Goethe. Six years later, the law of Manu appeared in German.

If we go back to the end of 18th century and the beginning of 19th century, we find throughout Europe increasing interest in the newly discovered ancient culture of India. Slowly knowledge of its classical literature, languages and religion were being translated in Europe through members of East India Company who were perusing scholarly works and through a number of English missionaries who had managed to come into territory administered by the company. Scholarly reports and research works were, of course, published in Europe particularly in Paris and London during this period which enabled these nations to take notice thereof.

It was in 1818 that August Wilhelm von Schlegel became a Professor of Sanskrit at the University of Bonn. He had journeyed to Paris to study under Professor Eugene Burnouf. Then followed further chairs of Indology at Berlin in 1821, occupied by Professor Bopp and at Munich, Erlangen and Koenigsberg in 1826. It was mainly an interest in Sanskrit which instigated the setting up of this new field of learning. The first Professor of Indology at the University of Tuebingen was Rudolf von Roth, who had been engaged by Eugene Burnouf to study the Rigveda. He had previously studied Theology at the famous Tuebingen University where so many other German theologists of fame had studied. Richard Garbe succeeded Rudolf von Roth as professor of Indology and Comparative History of Religion in Tuebingen in 1895.

Another important Indologist Max Mueller has played a very important role in Indological studies in Germany. Though he was a German by birth, British may quite legitimately claim him as one of their own. He went to England and pursued Sanskrit studies in Oxford. Max Mueller's interest in India was so deep that he did not confine himself to ancient history alone. He was very much concerned about modern Indian. Among his eminent works are the translation of Hitopadesha and a history of Sanskrit. He had written several other books on the history of ancient Sanskrit literature. He was appointed professor of Indology in Oxford University in 1868. Especially famous is his book : 'India—What can it teach us ?'. In view of his great contribution in Sanskrit studies and inspiration to all German Indologists it is fitting that the German institutes in India should be named after Max Mueller.

Indological studies have always placed Germans in a position of pre-eminence. Further refinement continued to be made at the score of universities scattered all over the Federal Republic of Germany. The distinction of providing a centre for unified inter-disciplinary studies under one roof goes to the South Asia Institute created under the aegis of the University of Heidelberg set up in 1962.

Other important German Indologists, who have contributed to this great area of Indian studies are Hegal, Heine, Schoppenhauer, Charles Lannmann, Heinrich Zimmer, Karl Geldner, Julius Grill. Grill had translated about 100 songs from Athruveda. Hermann Guender, a German missionary who worked in Kerala had composed a Malayalam-Hindi dictionary.

Both at the University library in Tuebingen and also of the South Asia Institute of Heidelberg University, very rich collections have been stocked. Over 70 thousand volumes are stocked in Tuebingen alone and more than 64 thousand in Heidelberg which concentrate studies exclusively on India.

The trend of Indological studies in the 60s coincided with the revivalist phase in the German political spectrum. Winds of change sweeping the third world led to a greater awareness of their existence and their related problems. As a country enjoying close links with India in the cultural, economic and religion spheres, it was inevitable that the German's perspective as well as attitude towards the developing countries notably India altered significantly. During this period greater emphasis was seen on Indological studies in universities of Heidelberg, Goettinge, Kiel, Marburg and of course Free University Berlin with its long rich indological traditions. Apart from the interest in the ancient Indian culture, extra trends, both religion and secular, received equal treatment focusing on the independence movement, themes like religion based nationalism, history of Hindu Mahasabha, examination of influence of Shankaracharya, the role of Hindu traditions in the contemporary India, study of the temple city of Puri and Jaganath cult etc. received equal attention from the present day researchers.

As mentioned earlier great deal of work is being done in various West German universities and the special areas in which each of these universities is engaged are indicated below :

1. Institute of Indian Philology and Art History at the Free University, Berlin
   Research is conducted in the field of Jainology, Buddhist texts and in Archaeology and Iconography.

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2. Seminar for Oriental Studies and Indology at the *Ruhr University*, Bochum.
   Studies in the Vedic literature esp. Upanisads, on the beginnings of Indian Philosophy on Vedanta on early Buddhism, and on dharma tradition.
3. Indological Seminar of the Friedrich Wilhelm University of Bonn on Rhine, Bonn.
   Emphasis is placed on classical literature, Buddhist Sanskrit, Pali, Prakrit, Hindi and Urdu.
4. Oriental Seminar of the University of Freiburg, Freiburg.
   Main points of interest are Pali and Central Asian Buddhist Studies, historical studies in Indian literature and political institutions. Research is concentrated on historical grammar of middle Indo-Aryan, on vedic literature Buddhist studies and cultural history of India.
5. Seminar for Indology and Buddhist Studies of the University of Goettingen, Goettingen.
   Sanskrit and Pali literature and language, history of Buddhism, cultural history of India.
6. Seminar for Culture and History of the University of Hamburg, Hamburg.
   History of Indian philosophy, including Buddhism and Indian religions, vyakarana and on cultural history in general.
7. South Asia Institute of the University of Heidelberg, Heidelberg.
   Classical Indology, Modern Indian languages and literature and History of Religion and Philosophy.
8. Seminar for Oriental Studies at the Christian Albrechts University of Kiel, Kiel.
   Scholarly interests are focused on Hindi grammar and semantics, history and development of classical Indian law and administration, based of inscriptional and documentary evidence.
9. Institute of Indology of the University of Cologne, Cologne.
   Vedic, Epic, Classical Post Classical Sanskrit, and Pali, Prakrit, Tamil with occasional addition of other Indian languages.
10. Seminar for Indology of the Johannes Gutenberg University of Mainz, Mainz.
    Buddhist studies, modern Indian literature, Hindukush languages cultural studies, classical Marathi.
11. Department of Indology of the Indo-East Asia Seminar at the Philipps University of Marburg on Lahn, Marburg.
    Vedas, Paninian grammar, particularly on the jaiminiya Brahmana and the Vakayapadiya of Bhartrhari and cultural history.
12. Institute of Indology and Iranian Studies of the University of Munich, Munich.
    Sanskrit and Prakrit literature including Sanskrit Buddhism and Jainism; Arthasastra, Dharmasastra and Cultural History; Indian history and Relations between India and Europe; Paleography, Archaeology and History of Indian Art including Buddhist Art.
13. Indological Seminar of the University of Muenster, Muenster.
    Philology, history of Indian religions and Philosophy.
14. Seminar for Indology and Comparative Religion of the University of Tuebingen, Tuebingen.
    Puraja literature and history of religions/philosophical concepts as expressed in literature and art.
15. Institute of Ancient Languages, Indo-Germanic Studies of the University of Erlangen-Nuernberg, Erlangen.
    Classical Sanskrit; Vedic and post-vedic language and culture.
16. Institute of Indo-Germanic Studies of the Johann Wolfgang Goethe University of Frankfurt, Frankfurt.
    Vedic, Classical Sanskrit and Hindi.
17. Seminar for Comparative Linguistics of the University of Giessen, Giessen.
    Vedic Prose (The Brahadaranyakopanisad of the Kanva-recension, adhyaya II-VI), Northern Buddhism, New Sanskrit Uygur bilingual manuscripts from Central Asia).
18. Institute of General and Indo-Germanic Linguistics of the University of Regensburg, Regensburg.
    Languages of ancient India and Sinhalese.
19. Institute of Comparative Indo-Germanic Linguistics and Indo-Iranian Studies of the University of Saarland, Saarbruecken.
    Vedic, Classical Sankrit and occasionally Pali or Prakrit.
20. Chair of Comparative Linguistics of the University of Wuerzburg, Wuerzburg.
    Indian languages from Vedic to Hindi, cultural history of the post-vedic and classical periods, with emphasis on ancient Indian Sciences (Astronomy, Astrology Medicine), Religion and Philosophy.

Keeping in view the good deal of work done in the field of Indology in West Germany, it was felt that a forum could be provided where all the German Indologists and some experts from India should get-together for exchanging views and experiences. Accordingly a Seminar on 'Indology in India and Germany—problems of information, coordination and cooperation—was organised at the University of Tuebingen from 1-3 April 1981 under the Indo-German Cultural Exchange Programme. This Seminar was attended by 20 leading Indologists from the Federal Republic of Germany and 7 from India. It was strongly felt that the national boundaries should not and need not be any hindrance to cooperation in scholarly pursuit of such specialised areas of studies. Programmes of this type will certainly strengthen opportunities assured by the two governments in providing contacts between the universities in India and the Federal Republic of Germany and thus promote more and more joint research studies in Indology. ❑

Future directions in medical education

Excerpts from the convocation addresss delivered by Shri B. Shankaranand, Union Minister of Health & Family Welfare, at the Postgraduate Institute of Medical Education & Research, Chandigarh.

Convocation

"It is both a privilege and a pleasure for me to be associated with the Annual Convocation of the P.G.I., Chandigarh... This is an occasion for reflection and introspection for both teachers and students with regard to the role of the P.G.I., its progress in the fulfilment of its objectives and in the achievement of the avowed goals. What should be the shape and direction of our endeavours in the future is of vital concern to the growth and development of the Institute. The training of scientific manpower in the specialised branches of medical sciences is a major pursuit of this Institute. A large number of specialists have already been trained and a good many of them are working in our country and abroad. I believe that the training of specialised medical manpower is only a means to an end and not an end in itself. Education and training must be coupled with creation of conditions for attracting talented medical personnel to face challenging tasks and for retaining them in an atmosphere of creativity and innovation.

"We are deeply committed to the fulfilment of the goal of 'Health for all by the year 2000' through the primary health care approach. The Prime Minister's 20-Point programme lays considerable emphasis on some of the essential ingredients of the primary health care approach. Control of Tuberculosis, Leprosy, and Blindness, improvement of nutrition and the stepping up of the Family Planning Programme are some of the important features of this programme. In the fulfilment of these tasks, our premier institutions engaged in teaching and research must provide leadership and example. The question is: in what way can our educational and our research programmes be made to play a supportive role to the attainment of these overall national goals in Health. This, I consider, to be the most important challenge before our Advanced Centres of Education and Research. At no time in the entire history of medical care and health promotion have the challenges to the scientific community been greater, and the opportunities for an effective response from such Centres more exciting.

"At this Institute you have a strong centre of research in communicable diseases, immunology, nutrition, control of blindness and in the alternative methods in the delivery of health care to the rural areas. You also have here basic research, applied clinical research and field-oriented research going on side by side. I would like to suggest that you build on this foundation and develop a continuity of action between these three categories of research and develop a truly integrated multidisciplinary approach for the resolution of priority health problems of the country. We must engage in identifying our priorities and structure our research efforts in order to reach the specific goals in the shortest possible time. Our research pursuits have to take a dual course. Firstly, we should not try to rediscover the wheel. We should utilise all the existing knowledge and technologies, adopt them where necessary and apply them wherever indicated. This task would require operational research into the development of appropriate technology. It is, of course, necessary that we should also be engaged in developing new sciences and, on that basis, new technologies and new forms of treatment and prevention.

"Health is not just something an individual desires in order to enjoy life; it is essentially a basic need of every society if the individuals who constitute it are to be economically productive and not a drain on its limited resources.

"The life expectancy at birth could be further raised if we reduce the causes of death: maternal mortality, infectious and parasitic diseases, influenza, pneumonia, bronchitis and diarrhoea. So, we have to see that our health policies need to strike a balance between the costs and terms of the curative versus the preventive strategies. If the parasitic and infectious diseases contribute to a high incidence of mortality, the strategy will naturally have to emphasise prevention. To improve maternal and child health, a strategy emphasising both preventive and curative services is called for. We have to continue dealing with infectious diseases even when they begin to decline as we will have to remain prepared to cope with the degenerative diseases which would arise with the increase in life expectancy.

"Proper geographical distribution of health services needs to be ensured if the trend towards urban concentration is to be reversed. Specific health policies have to be considered to alleviate the problems of identified disadvantaged groups, such as the urban and the rural poor, and all high risk groups, such as children and mothers.

"It is necessary to emphasise the close relationship between health and economic well-being. A country's health prospects depend on the domestic economic trends as well as on the prospects of the international economy. Happily, we do not have the problem of food supply, the shortage of which will undoubtedly endanger health and increase mortality.

"The aim of health manpower planning is to ensure that the right number of personnel with the right skills are provided at the right time and place for the delivery of appropriate services. This is so because manpower as a positive equipment of supply is inherently complex and difficult. The difficulty arises when we fail to synchronise manpower planning with the formulation of health plans, with the result that resources are not developed in parallel and trained personnel are not well used. For example, a new hospital completed at great cost may stand unused because of lack of nursing staff. Another deficiency in manpower planning is traditionally related to the tendency of projecting and matching the total number of health workers needed with the number available, in making quantitative projections. There has been often neglect of other equally vital issues such as the relevance of educational programmes to health services needs, manpower productivity, the downward delegation of tasks and manpower distribution.

"Community participation has now achieved universal acceptance. Development of more adequate systems of health promotion cannot be conceived without the people themselves playing a greater and more self-reliant part, both in the identification of health problems and in finding appropriate and cost-effective solutions to them. The participation implies an active involvement in all aspects of health including planning and priority setting, financing, delivery of services and evaluation as well as the traditional recipient role. Community involvement is important because of its larger psychological action. Half the battle is won once the community accepts a programme as its own and is committed to its success.

"Primary health and care may initially cost more but it is expected to yield a greater overall return to both health and development. New resources for financing must be vigorously explored.

The primary health care approach, in concrete and practical terms, is to establish and reorient our health systems so that they no longer take the passive "Come-and-get-it" approach in which highly trained professionals wait for patients with problems to show up through the ambulatory or emergency services. We have to develop and reorient our health systems to be active, working-out systems which pursue, at the periphery, clearly defined goals and tasks of health promotion, diseases and disability prevention, and treatment and rehabilitation when problems have occurred. Undue emphasis on the curative side has produced a technocratic system of health care which we can ill-afford. Thus, the real challenge for Health for all movement is to find a health service that people can afford and enjoy; in which the people themselves can play a major role.

"In her address on the Founders' Day Celebration at the Lady Hardinge Medical College, the Prime Minister has said, "Leaders of medical education should do some serious thinking on the planning of medical studies. The needs of our own people and the aim of a healthy India must come first. It is not sufficient for medical graduates to put in a year or two in the rural area—although that too is important—but of giving community orientation to the entire medical system".

"We may not expect all our doctors to become involved, emotionally or practically with the delivery of primary health care, but certainly it is possible to find some with a sense of dedication, flair for epidemiological analysis, ability to plan and get things done, organise and improvise, and influence people and health workers and community leaders. Today they may be far too few of them, but we should make every effort to spot the bright candidates and encourage them to enter and settle in this new field by providing them with proper incentives and the right kind of training. I am sure they will get exciting experience. Our country does not lack in young men and women with an adventurous spirit who, if given the right encouragement, would enjoy working in primary health care and who will become the future health leaders. Development of such people should have high priority in the implementation of various health programmes.

"The rapid population growth in our country has made it extremely difficult for us to achieve our health goals. Our population policy, therefore, has been considered as an integral part of overall development policies and I am happy that appropriate measures for family planning and population control are yielding encouraging results. We have given emphasis to bio-medical and social sciences research so as to make family planning more widely acceptable. Attention is also paid to motivational activities, population education, information and efficient delivery service. The voluntary nature of population control measures have been upheld and promoted.

"To my young friends who have received their degrees, I have a message to give. Your noble profession gives you a rare chance to do good to the society. Avail of this opportunity, help the downtrodden, poor and needy in the rural areas and earn their gratitude. I would request you to wholeheartedly devote your energies to the service of the nation." □

R & D aspects of agriculture

Excerpts from the convocation address delivered by Dr. J. S. Kanwar, Director of Research, ICRISAT, Hyderabad. at the Punjab Agricultural University, Ludhiana.

"Convocation is an important event in the programme of a University and an important milestone in the career of a recipient of an academic degree. It represents the successful completion of one phase in life and the beginning of another. While the University puts its stamp on the scholastic attainments of an individual, indicating that he has gone through a process of learning and is supposed to have acquired certain skills and knowledge, it is for the recipient of the degree to demonstrate how he makes good use of this knowledge. This degree means different things to different people. For some it is an occasion for taking a solemn pledge for dedicating their life for the cause of science and technology and service to humanity, for some it is a passport for employment. for some it is a status symbol, and for some a "Hundi" to be encashed in some other ways including marriage alliance.

"For some poor parents who have spent their hard-won earnings on the education of their children, the degree means an end of their suffering and a hope for the fulfilment of their life's dreams—though they may soon become disillusioned. The recipient of the degree realises that he is merely at the crossroads and his real test in life begins after he has received the degree. His condition can be described by the proverb that "a woman worries till she is married and a man begins to worry after he is married".

"The degree of M.Sc. is a misnomer because the recipient of the degree does not acquire mastery over science, but has learnt only how to pursue science. It is like a married man who lost his bachelorhood but not yet gained masterhood.

"The problems of a graduate in agriculture are even more complex because many believe that he will go to a backward village and make his living by farming or putting into practice what he has learned. It is conveniently forgotten that modern agriculture is a business, and no business can be successful without appropriate invesment. Only an insignificant number of graduates in agriculture have the resources to do practical farming. Many of them do not even have land. If the Government statistics are correct, 57% of farmers in Punjab have 2 ha or less of land. Assuming the University has the same percentage reflected in its admissions, and also adheres to the reservation of seats for special classes and to meritorious students from cities who do not have land, it becomes evident that it is an exceptional case if a graduate in agriculture goes back to farming to earn his living. This situation occurs all over the developing world, and Punjab is no exception...

"We realise that we have reached the physical frontiers with regard to increasing production through horizontal expansion. No doubt in the last 30 years India has more than doubled its food production. But in the next 20 years—to be precise in the next 18—it must again double its food production to feed the ever-increasing population satisfactorily. Let us not forget that 450 million, or 30 times the Punjab population, in the world is malnourished in Asia, Africa and Latin America. By the end of this century, developing countries will be importing close to 200 million tonnes of foodgrains. In India also, the gap between food needs and food production is widening, though, thanks to new technology and contributions to our food banks from such surplus states as Punjab, Haryana, and others, we have averted some of the worst calamities and droughts without famine and starvation deaths.

"It is interesting to observe that the contribution to increase in production by area-increase has been very low and most of the increase has come through improved technology and hard work. From 1960 to 1980 in the developed countries 92 per cent and in developing countries 73 per cent increases in production came only through increased crop yield. Future projections show that in Asia the only hope of meeting the food needs of the bourgeoning population is through increasing yields—i.e., through vertical expansion. Even in Africa and Latin America, where scope for area expansion still exists, the physical, economic, social and political constraints and the hazards of disturbing the ecosystem are frightening, and make the area increase an unlikely way of increasing production. There is also no hope that the world population will stabilize itself earlier than the year 2020. Thus the next few decades comprise a period of great challenge to agricultural scientists, because the main strategy of the world for meeting the future challenge of food, fibre and fuel wood shortages is through the increased productivity of the land already under the plough...

"On this Convocation day, I wish to pay tribute to the foresight and wisdom of Pandit Jawaharlal Nehru, who laid the foundation stone of this University and to Sardar Pratap Singh Kairon who supported and encouraged the University to transform the stagnant, subsistence agriculture into one of the most productive agricultural systems based on the use of science and technology. Is not it interesting that at the time of establishment of this University the average yield of wheat and rice in Punjab was 1244 and 1009 kg respectively, and fertilizer use was hardly 1 kg nutrient/ha, whereas today the average yield of wheat and rice is close to 3000 kg and fertilizer use is more than 106 kg/ha of plant nutrients ?...

"Punjab is not endowed with mineral resources, nor has it any major industry. It is primarily an agricultural state, and this situation is likely to continue. It does not have any reserve land resources, nor any forest resources. Out of the State's 5 m ha 4.2 m ha net, or 84 per cent has already been brought under cultivation. The State has almost reached the physical limits for bringing new areas under the plough. There is a serious shortage of forests and fuelwood plantations and other sources of energy and power. *Its base is agriculture* and will continue to be agriculture. But agriculture does not mean producing cereal grains only. It should encompass all aspects of agriculture and its related industry and services. In the USA 2% of the population is employed in farming but as much as 25% is engaged in agri-business : why should not this happen in Punjab ? Let our planners examine such possibilities.

"No doubt Punjab Agricultural University can be proud of its research achievements and the Vice-Chancellor's report gives a good account of them. I would however like to make a few comments for your consideration.

"About 85% of the States net cultivated area is under irrigation but the intensity of cropping is hardly 156%. It seems that many areas are still not double-cropped. When we look at the yield of crops we find that only 9% of the farmers obtain wheat yields ranging between 3.4 and 4.2 tonnes/ha. Why is this ? No doubt there has been phenomenal increase in total production of wheat and rice—8 to 30 times respectively—but the increase of yield is only 3 times. If the average annual yield of irrigated wheat in the Netherlands is 5.0 tonnes/ha and of rice in Japan is 6.0 tonnes/ha, we in Punjab should not be content with an average yield of about 3 tonnes/ha of those cereals. I understand some of your best farmers have done better than the Japanese or Dutch farmers, but what I am concerned with is average yields. You must break these barriers and attain new heights of achievements. Every rice/wheat field must record an average annual yield of more than 5.0 tonnes/ha. In my Presidential address to the 12th International Congress of Soil Science, I mentioned that from 40 million ha of net irrigated area *India* should be able to produce 400 million tonnes of food grains annually. There is no reason why Punjab should not produce more than 30 million tonnes of food grains, instead of 12 million tonnes from more than 3 m ha of net irrigated land under cereals. If about 10 percent of your farmers are already achieving impressively high yields, 90 percent also should be able to achieve the same.

"Fertilizer use in Punjab rose from less than 1 kg nutrient/ha in the 1950s to more than 106 kg/ha in the 1980s, but it is one-quarter to one-third of the amount used in Japan and Netherlands. Three districts in Punjab—Hoshiarpur, Ropar and Bhatinda—still use less than 40 kg/ha of nutrient/ha. No doubt lack of irrigation is a constraint in these districts, but good management of rainwater and soil fertility can also produce spectacular results. I have seen similar yields being obtained under the dryland project by the Soils Department of your University in 'Kandi' area of Hoshiarpur district as are obtained under irrigation at Ludhiana. This shows how much untapped potential still exists.

"The increasing deficiency of plant nutrients and the widening spectrum of this deficiency plus the appearance of new diseases and pests, pollution hazards, and ecological disturbances are some warning signals. I recall the days when questions were raised whether Punjab soils need phosphorus. In the last two decades you have witnessed how nitrogen, phosphorus and zinc have become common fertilizers. Now the evidence for manganese and sulphur deficiency is building up. Such is an unavoidable price that nations have to pay for increasing production. Let us not forget that soils is not an inexhaustible store of nutrients. The spectrum of nutrient deficiency will go on increasing, both in intensity and complexity. Your soil scientists match the best in the world and you cannot ignore their advice except at the peril of ruining agriculture.

"I am happy that your University has set up a plant health clinic which, besides monitoring and forecasting regularly the disease and pest situation, also provides advisory services to farmers. I believe you have animal clinics, also, for providing *similar services, to dairy* and poultry farmers. You also need a few benchmark sites for regularly monitoring and forecasting the changes in the soil and environments.

"Raising agricultural production calls for more and more inputs, such as water, fertilizer, energy and management. For doubling production you need to more than double the consumption of fertilizers and manures. The rising cost of these inputs necessitates a big drive to increase the efficiency of inputs and encourage farmers to use adequate inputs. With better scientific management of the soil, water, and crops, the efficiency of every input can be increased. Take the case of N. In India in rice cultivation barely 30-35 percent efficiency of N is reported, whereas this can be increased to over 50 percent. I am happy to note that your scientists have already developed *techniques that can raise the* efficiency of N to the desired level and effect considerable economy in the use of fertilizer N, but you need to popularise these techniques.

"Punjab has the highest percentage of irrigated area and likewise the use of energy in agriculture in India because both tube-well irrigation and fertilizer application consume large amounts of energy. Unless the efficiency of these inputs is increased the returns to the farmer will not increase. Balanced fertiliser use and the optimum use of water in intensive cropping systems should be the ideal that we should strive for. Many of your farmers in Ludhiana are growing crops in sand cultures. In such a situation input management and resource management are most important as losses of plant nutrients and water are high. *In view of increasing* demand for irrigation water by the neighbouring states, it is all the more important that highest priority be given to improving efficiency of irrigation water and to regularly monitoring the changes in water and salt balance in the soils. You have the country's best soil scientists, engineers, agronomists, plant breeders, economists and other scientists, as evidenced by the honours they have won, publications they have produced and agricultural technologies they have released. But there is a *wide yield gap between research* and the farmer's field and it must be bridged. I understand many scientific findings have not left the scientists' lab, and many problems have not yet been tackled.

"Punjab does not have fossil fuel but has the largest need for this form of energy for its mechanised agricultural operations and for running its tube wells. It is therefore essential to consider seriously the use of solar energy in agriculture in order to economise in the use of energy from fossil fuels.

"Punjab has great scope for processing its own agricultural products and thus for adding to their value and generating more employment. The food processing and other forms of post-harvest technology offer considerable scope for the State to improve its economy. No doubt there is an *unlimited market for the sale* of agricultural produce in unprocessed form, but future generations of Punjab will not remain content with the traditional agriculture. The system has to be more mechanised in the field and in processing plants, and to be more diversified, to enable future generations to fulfil their aspirations.

"I may be wrong but I get the feeling that rural youth in Punjab prefer even low-status jobs in UK, Canada, or Gulf States more than farming by traditional methods in villages. Unless there is greater diversification in agriculture and there are more options for employment in villages, agriculture in Punjab will suffer for want of labour. To keep the *young people gainfully employed* in rural agriculture, development of relevant industry is the answer. Future farmers dislike the drudgery of farm operations and look for sophistication, greater dignity and mobility, and the University has to find ways to cater for these needs.

"New agriculture means a new ecosystem, new problems, and the increased use of science and technology. Weeds such as Phularis minor and such diseases as Karnal bunt and rust are threatening your wheat crop and, unless scientists keep abreast of control requirements, you can face a big catastrophe. Rice, which is becoming one of the most important crops for the State, is threatened by even more serious problems....

"Both the production and productivity of pulses are stagnant. It is unfortunate that the availability of pulse grain per capita, even in Punjab, is less than half of what it was 30 years ago. I see good potential for such a crop as short-duration pigeonpeas in rotation with wheat. Growing it would reduce the cost of nitrogenous fertilizers, improve the economics of wheat production, and step up pulse production in the State. It also offers good prospects for reducing the shortage of *domestic fuels*. Groundnut also offers good economic returns, provided more innovative and interdisciplinary research is undertaken.

"Let us recognise that modern technology is the result of the free exchange of ideas and materials and interactions between international, national and state-level research organisations. The wheat and rice revolutions would not have been possible without such interaction with CIMMYT and IRRI. A breakthrough in pulses and oilseeds should be possible before long if the national and international centres work together. I believe this revolution is around the corner but it will not be possible unless more resources are put into research by the State. It is interesting to observe that sometimes resources are a constraint, sometimes policies and sometimes even the scientist also becomes a constraint.

"Data for *maize* and *bajra* yields in the State do show there have been significant increases in recent years. But unless these crops give average yields to each farmer greater than 5 tonnes/ha, they may not survive in a competitive *market. I understand* there are good possibilities of high production in rabi season maize. Can some innovative research lead to new technology in this cropping system?

"Agro-forestry and specialized horticulture seem to attract farmers, particularly absentee landholders. I wonder whether the University can provide a lead in this area? The need for research is urgent in such districts as Hoshiarpur and Ropar where the potential for forestry and horticultural enterprises, even without irrigation, is considerable. Likewise, dairying and animal and poultry production need a new orientation. Trials with new crops and new enterprises for the *diversification of agriculture* are also essential, as I have already argued.

"Though Punjab is called the land of *irrigated* agriculture, one-sixth of the area depends on rainfed farming only. A combination of water resource development and new technology of *dryland* agriculture can achieve the miracle in the agriculture of these areas.

"I *am glad University* economists are critically examining the changes in the agricultural economy. One disturbing feature of the changing scenario is increasing expenditure on alcoholic beverages. It is reported that the Punjab farmer is spending 3.05% of his income on education and 4.5% on beverages. It is that the farmer has developed new notions and habits and he erroneously considers drinking a status symbol and sign of progress, or is it that most of the milk and milk products are going to the dairies and there is not even 'Lassi' available? May be the effect of prosperity and mistaken notions! I realise it is a social problem and there is very little that the Agricultural University can do about it. But there is a need to persuade farmers to make more investment in land improvement, agricultural production, and education, and to spend less in unproductive ways...

"It is shocking to see millions of tonnes of rice straw and even wheat straw, being burnt in the fields of Punjab. Besides being a waste of a valuable resource, burning is a great health hazard. "Can the engineers do something?" is the question the farmers ask. We should also look at biogas technology critically and integrate it into the farming system.

"Improving animal production systems can improve the economy of crop-based farming systems. How far integrative research on this subject is being done—I can't say. A systems approach will certainly help, and Punjab Agricultural University can provide a lead...

"Modern agriculture is becoming highly specialised and input-intensive and subject to economic forces. Our Universities should come up with authenticated data based on analysis of the changing scenario, to enlighten the policy makers who are concerned with keeping agriculture productive and remunerative.

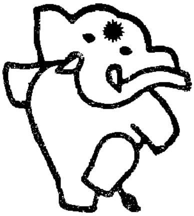
"Today's agricultural research is increasingly interdisciplinary. Its progress depends on the catalystic effect of national and international effort. There is a need for a continuous outflow of talent and the cross-fertilization of ideas. Let us beware of the dangers of inbreeding and sons-of-soil policy for employment. Let us remember the philosophy which Guru Nanak expounded when blessing the most devoted and beloved disciples who had looked after him so well. He remarked that they should spread far and wide and not congregate in the same village as he felt the good must spread and evil must remain confined and contained in a limited area. Punjab Agricultural University would not have been great if it had not tried to attract talent from wherever it could find it. We should also not keep our good people constrained in any way, and their knowledge must be shared.

"As I mentioned at the beginning, Punjab has great potential for helping others through its scientific manpower provided it makes its manpower suited to the needs of its potential employers—the market at home and abroad. The expanding horizon of knowledge necessitates continuous review of our curricula and the introduction of specialised courses to meet special needs. You have adopted certain aspects of the land-grant system from USA, but not the flexibility and the dynamism of that system. The University should be able to invite learned persons to give special courses or to initiate special researches. Punjab Agricultural University's strength was its dynamism and cross-breeding; let us not weaken it with inbreeding....

"No agricultural university can be strong without the financial and administrative support of the State Government. Punjab, which is an agricultural state, can ill-afford to strave its University, a milch cow for the farming community of the State. Modern agriculture is highly dynamic, and any deficiency in the university will reflect on the agriculture of the State and of India as a whole. Agricultural universities while continuing to advance the frontiers of knowledge, also have to keep a watch and ward on the health of agriculture. While nations look for new armaments for remaining abreast of the developments in the world, agricultural universities also need newer equipment, pay their teachers better so as to attract the best and develop newer knowledge and new concepts. There can be no output without input. Let the university not have a feeling that it is being starved for resources...

"The challenges of the future are numerous and complex. Agriculture is entering a new phase and is becoming an industry and agri-business. It deserves privileges and protection similar to other industries. Otherwise it will become an unattractive enterprise.

"Let us remember that Punjab agriculture is an enterprise of small peasants, 57% of whom own less than 2 ha land. They can remain in business only if their aspirations and needs are fulfilled by remunerative agriculture..." □



- According to latest reports, with intimation received from Bangladesh, 25 countries will participate in Asiad '82. This equals the record for the number of countries that have participated in previous Asiads.

- The internationally acclaimed Sitar Maestro, Pandit Ravi Shankar, has agreed to accept the cultural leadership for the Opening Day Ceremonies of Asiad '82. His team of experts for music consists of Mr. Vijay Raghav Rao and Mr. Ashit Desai. Mr. Narendra Sharma, Mr Appuni Kantha, Mr. Ananda Shankar and Ms Tanusree Shankar have been chosen by Pt. Ravi Shankar for coordination and choreography of the cultural items.

- The Hindi lyric of the Asian Games Hymn composed by Mr Narendra Sharma, a poet, has been set to music.

- The theme of the cultural activity will be "Unity in Diversity". The cultural items will represent various aspects of India's heritage. These items have also been finalised.

Campus News

Seminar on the Sociology of literature

The Centre of Advanced Studies and Research P.G. Complex, Dakshina Bharat Hindi Prachar Sabha, Hyderabad organised a Seminar on the Sociology of Literature which was inaugurated by the Education Minister of Andhra Pradesh, Shri K. Kesava Rao. Shri Rao in his speech stressed upon the need for making the students socially conscious and interpreting Literature to magnify the social relevance of the artefacts.

To fulfil the purpose of the seminar speakers with an inter-disciplinary outlook were invited from various disciplines. The discussion was initiated by Dr I.N. Choudhuri, Professor & Head of the Institute. He traced the history of the sociological approach to literature which included the mechanistic, positivistic, marxist, mythical and neomarxist view points. Literature according to him is not a mirror or a document of the society. The economic factor is important but there is interaction between the society and the artefact and any study of literature from this angle needs to be subtle and the intrinsic value of literature should not be denied. Dr Alam Khundmeri, formerly Professor of Philosophy, Osmania University, explained the social aspect of literature with reference to the epochal change in a society. Every period has its own devices for the reproduction of art. The present epoch has accepted the ontological relationship between the society and literature and so the basis and super structure approach cannot be helpful to understand the present day existentialists. Dr. C.B. Rawat, Professor and Head of the Hindi Department, Hyderabad Univesity raised the question of the sociological aspect of literature from the point of view of literary style. A text is structured in a certain way because it is a distinct use of certain distinctive materials given in advance. The society is a representation of our language categories. Whatever 'reality' is, we do not think directly in terms of it, but in terms supplied by language.

Dr R.K. Khandelwal, Professor & Head of the Department of Hindi, Osmania University explained what is social realism which identifies some important characteristics of the contemporary story form in Hindi. He cautioned that realism from the social point of view is to be accepted on a reflective level as the art of story is not only representational but also rhetorical.

Dr B.N. Singh, Reader of Hindi, Hyderabad, analysed the medieval and romantic Hindi poetry from the sociological point of view and brought out in details the revolt of the Bhakti and romantic poets against the existing norms of the feudal or capitalist society.

The conclusion of the seminar was that some studies in the sociology of literature are simple and mechanistic. Some are subtle and imaginative: most seem to fall in between these two poles. At its best the sociology of literature can throw light on the way in which the nature of the work has itself been qualified by all kinds of social factors.

Training for Uganda students in India

A two-member delegation with Prof. G.S. Marwaha, Director, India School of Mines, as its leader and Dr. Raghuvir Singh, Head of the Department of Electronics, University of Roorkee, as a member, left Delhi on the 17th June to Uganda for discussion with the Ministry of Education there in the matter of providing training facilities in India in Mining Engineering and Communications for students from Uganda.

The training facilities are being worked out under their Special Programme Scheme of the Government of India on a full-cost basis.

The delegation will hold discussions with the Ministry of Education in Uganda and finalise the necessary agreement including the financial arrangements and test prospective students of Uganda for admission to the relevant courses in India. The delegation may also take the opportunity to study the manpower development planning of the Government of Uganda in professional fields.

Short-term institute in linguistics

A three-week long All-India Short-Term Institute in Linguistics is being held at the Kurukshetra University Campus. The Institute is being financed by the UGC. Prof. Ganpati Chandra Gupta, Vice-Chancellor, Kurukshetra University, inaugurating the short-term Institute called upon the scholars of language to clearly define the goals and objectives of the discipline of linguistics, and explore the infinite power of meaning inherent in language. The Vice-Chancellor decried the tendency of Indian scholarship to blindly ape the western thinkers in the linguistic researches.

Dr Ram Parkash, Pro-Vice Chancellor of the University, presided and Dr. D.S. Dwivedi, Professor and Head of Linguistics Department and Director of the Institute welcomed the participants.

About 45 participants from

various universities of the country and affiliated colleges of Kurukshetra University are attending the institute.

Triple benefit scheme for teachers of Jammu

The Triple Benefit Scheme i.e. G.P. Fund-cum-Pension-Gratuity has been made applicable to the teachers of the Jammu University. The teachers are being asked to give their option to choose either of the two schemes within a period of 3 months. The option once exercised shall be treated as final. No alteration in the age of superannuation has been made.

Management education and industrial productivity

The focal theme for discussion at the *Ninth Annual Conference* of the Indian Association for Productivity, Quality & Reliability will be "Technical and Management Education vis-a-vis Industrial Productivity". The relevance, utility and adequacy of Technical and Management Education at all levels organised by academic institutions, professional societies and industries will be discussed in three technical sessions of the conference. The conference is proposed to be organised on July 31 and August 1, 1982.

Dr. S.P. Mukherjee of the *Department of Statistics, University* College of Science, 35, Ballygunge Circular Road, Calcutta, is incharge of organising the conference.

Maharshi Academy of Vedic Sciences

Prof. I.J. Patel, Ex-President of the Association of Indian Universities in a telephonic communication informs that the Executive Council of the Gujarat University has processed the recommendations of the Maharshi Academy of Vedic Sciences, Ahmedabad, as a centre for doing work leading to the Ph.D. degrees in Vedic Sciences. Vedic Science includes Veda, Vedanga, Upnishads, the two Epics, Puranas, Aranyakas. Students wishing to pursue Ph.D. degree in one of the above branches can approach the Academy.

University service and instrumentation centre at Jammu

A University service and instrumentation centre with 100% assistance to be given by the University Grants Commission till 31st March 1983 and thereafter the expenditure to be borne by *the University itself, is being set* set up in the University of Jammu. Follow up action in filling up the vacancies created in the Centre is being taken.

Madras modifies M.Phil, Ph.D. regulations

The Syndicate, at a meeting on April 27, considered certain modifications relating to M.Phil./Ph.D. regulations and resolved that the following modifications be approved :

1. (i) A co-guide for Ph.D. guidance will not normally be granted except under the special circumstances for doing research in inter-disciplinary fields, etc.

(ii) A co-guide will not also be normally granted after lapse of over a year after the candidate has registered.

2. The exact title of the thesis should be intimated to the University as follows :

(i) in case of full time Ph.D. scholars, within 18 months after their registration;

(ii) in case of part-time Ph.D. scholars, within 24 months after their registration; and

(iii) in case of M.Phil. scholars, within 6 months after their registration.

If there is any change in the title for the thesis subsequently it must be brought to the notice of the university immediately and the approval obtained for the change.

3. Full-time research scholars are expected as per rules to submit their theses within 5 years after registration and part-time scholars within 6 years after *registration.*

Extension of time to submit Ph.D. thesis will be granted on payment of prescribed penalty fees. The penalty fees for late submission of Ph.D. theses and dissertations will be applicable for students and scholars going in for M.Phil. degree also.

Jammu to introduce B. Lib. science course

The University Council of the *University of Jammu at its meeting* held on 31st May 1982 has approved the Institution of B. Lib. Science Course in the University from the next academic session i.e. 1982-83. The University Grants Commission has sanctioned two posts— One of Reader and One of Lecturer for this purpose.

New Vice-Chairman of UGC

Professor Rais Ahmed, at present Professor of Physics at the Aligarh Muslim University, has been appointed Vice-Chairman of the *University Grants* Commission. He succeeds Prof. B. Ramachandra Rao.

Professor Rais Ahmed was previously Vice-Chancellor of University of Kashmir from 1978 to 1981.

News from Agril. Varsities

KKV develops improved farm tools

Use of sickles in harvesting rice in Konkan region is indispensible. However, the labour requirement with the traditional sickles is high due to their dull cutting edges, incorrect shapes and heavy weights. Moreover, these sickles leave a long stalk of rice crop after harvest which is found to favour hibernating rice stem borer larva.

The Konkan Krishi Vidyapeeth has designed and developed a sickle known as 'Vaibhav Sickle' which has following advantages. (1) It helps to harvest close to the soil surface leaving only 1 to 2 cm, rice stalk. (2) Due to close cut, there is increase in straw yield by 500 to 600 kg/ha. (3) The labour requirement is reduced by 12 units/ha. (4) It does not require sharpening. (5) It weighs only 175 gms. (6) It costs only Rs 8.50.

In trials conducted by the Central Institute of Agricultural Engineering, Bhopal, the 'Vaibhav' sickle ranked first in harvesting rice crop. It was also found suitable for harvesting other crops. The Indian Society of Agricultural Engineers at their eighteenth convention has recommended to propularise the use of the 'Vaibhav' sickle at the national level.

Considering the growing demand from the Konkan region in particular and other parts of the State as well as from the rice growing regions of the country, the Konkan Krishi Vidyapeeth has taken up mass scale production of the Viabhav Sickles. So far the Universiy has supplied 23,000 pieces and still there is an immediate demand of 10,000 pieces on hand.

Research on harvesting fo mango fruits has shown the need to harvest fruits with pedicel. At present harvestig is done by a local tool known as 'Zela'. By this tool, the fruit is held against two sharp strips of bamboo or metal and separated by pulling action. Therefore, majority of fruits are separated without pedicel. Not only that but at the time of separation of fruit, the branch shakes heavily due to which unmatured fruits also drop down. The fruit separated without pedical gets injury at the point of detachment. Through such injury, fungal organisms enter into the fruit which cause rotting of the fruit. From the point of detachment the sap also oozes out which smears over the fruit and the fruit looses its market value.

In order to eliminate the above mentioned losses new mango nipper has been designed and fabricated at the Konkan Krishi Vidyapeeth. It has two spring loaded blades which are provided with wings. The wings help to guide the pedicel and bring it between the blades. Then with little pull and the reisistance of the pedicel, the movement of the blades take place against the tension of the spring. During this movement of the blades, the pedicel is sheared. Thus no injury is caused to the fruit as well as to the branches. This mango nipper has 75% more harvesting efficiency over the local 'Zela'. The Konkan Krishi Vidyapeeth has manufactured mango nipper to make it available to the farmers. The cost of this nipper is only Rs. 30 per piece.

UAS hosts national workshop on oilseeds

The National Workshop on Kharif Oilseeds was held at the University of Agricultural Sciences, Bangalore from May 7 to 11, 1982. Inaugurating the workshop, Dr. M.V. Rao, Deputy Director General, ICAR spoke on the need for achieving a production level of 13.5 million tons of oil seeds, the target set for the current year. Dr. Rao said that the short fall has been caused by the extension of oilseed crops to new areas with low inputs resulting in low productivity. The annual short fall is around 3.5 million tonnes and the Government imported edible oil worth Rs 800 crores every year.

Presiding over the inaugural session, Dr N.G. Perur, Vice-Chancellor of the University, made an appeal to the scientists to develop new high yielding varieties and also formulate package of practices for getting high yields.

Earlier Dr. K. Krishna Murthy, Director of Research, welcomed the gathering. Sri. G. Ankineedu, Project Coordinator (Oil seeds) proposed a vote of thanks.

Dr. O.P. Gautam, Director General, ICAR, delivering the valedictory address, said that the country would become self-sufficient in oil seeds in a short time. He further said that short term and inter-crop varieties of oilseeds had been developed in the country for adoption by the farmers.

PAU orientation course for public analysts

A three week Orientation Course for Public Analysts was organised recently at the Punjab Agricultural University. The course which was organised by the Department of Food, Science & Technology of the University is being attended by more than thirty delegates from all over the country.

Inaugurating the course Mr. D.S. Chadha, Assistant Director General of Health Services in the Union Ministry of Health and Family Welfare said that the food scientists should inculcate a sense of awareness about pure and quality food among the general public as the common man was generally ignorant about adulteration in the food articles. He emphasised that there should be uniform analysis and reporting of food samples and uniform implementation of the Prevention of Food Adulteration Act.

Dr S.S. Johl, Director of Research of the University, presided.

Dr. I.S. Bhatia, Dean of the College of Basic Sciences & Humanities of the University, welcomed the Chief Guest and delegates and explained the objectives of the training course.

National seminar-cum-workshop on urea super granules

The University of Agricultural Sciences, Bangalore, organised a National Seminar-cum-Workshop on Urea Super Granules on May 27 and 28, 1982 in collaboration with the Indian Farmers Fertilizers Co-operative (IFTCO) and the Government of India. Over 100 delegates representing Agricultural University, State Departments of Agriculture, and Horticulture Fertilizer firms and policy makers participated in the Seminar.

Inaugurating the Seminar, Mr. P.R. Naik, Development Commissioner, Karnataka Government, made a reference to the perceptible drop in the consumption of fertilizers lately and emphasised the need to reverse this trend.

Mr. M.R. Talwar, Managing Director, IFFCO, who spoke on the occasion said that the installed capacity of nitrogenous fertilizers in the country was 10 million tons of which 4.1 million was planned for urea. The Urea efficiency was stated to be 60 per cent for Rabi crop and 40 per cent for Kharif crop.

Mr. Mahdi, Commissioner, Fertilizer Promotion, Government of India, said that the applicators for applying urea super granules was the main problem. In China, a suitable applicator had been developed and India was trying to import prototypes of this kind within a month or two to replicate and put them on trials.

Dr. N.G. Perur, Vice Chancellor, who presided, said the trials with Urea Super Granules indicated that it was more efficient than ordinary urea.

Earlier Dr. K.A. Jalihal, Director of Extension of the University, welcomed the gathering and Mr Chinnmulgund, Regional Manager, IFFCO, proposed vote of thanks.

UAS participates in exhibitions

University of Agricultural Sciences, Bangalore participated in the Kassia-82, an All India Industrial Exhibition from May 10-24, 1982 at Bangalore. The University pavilion was awarded a prize for the effective display.

The University also participated in the International Food Exhibition, Ahara-82, Food Expo held at Bangalore from May 23-30, 1982.

Horticulture research

Some researchers of the Indian Institute of Horticultural Research Bangalore, produced a good number of tissue cultured saplings of banana, pineapple and jack fruit.

It is reported that in this method small portions of actively tips of trees or plants are taken and raised in appropriate mediums under aseptic conditions. Innumerable plants can thus be produced at relatively low-cost from a single high-yielding plant, it is claimed.

ICAR units in Sikkim

The Indian Council of Agricultural Research, it is reported, is very soon going to establish three more branches in Sikkim.

Symposium on animal genetics breeding

A two-day national symposium on 'Animal Genetics and Breeding' will be held at the College of Animal Sciences, Haryana Agricultural University (HAU) from 8th July, 1982. This was disclosed by the Dean, Dr Daya Singh Balaine who is also the organising Secretary of the symposium. The theme of the conference will be 'Breeding livestock for economic efficiency'. Leading scientist from all over the country will be presenting their papers on dairy cattle and buffaloes, sheep and goat, layer broiler chicken and swine. The scientists would also discuss the breeding aspects of camels and horses.

News from Abroad

New technique for liquid phase separation

Dr Samuel Larkai, a 32-year old Ghanaian post-doctoral research assistant, now attached to Bradford University in Northeast England, shared with Dr Philip Bailes, a British chemical engineering lecturer at the same university. "The Moulton Medal."

The award conferred by the British Institution of Chemical Engineers, was in recognition of a joint paper on "An experimental investigation into the use of high voltage (DC) fields for liquid phase separation."

A Bradford University statement said the discovery by Dr Larkai and Dr Bailes holds a great potential for oil, chemical and other industries, since the separation of the liquids involved is effected instantly. It can also be adopted to any changes required in the process of dispersion.

It added that apart from its application in the oil chemical industries, it is likely that the new method of "liquid-liquid separation" could be applied in hydrometallurgical industry. It is understood several British chemical industries have already applied for patents of the new discovery.

The Moulton Medal instituted in 1928 is awarded by the institution annually for the best published scientific discovery paper.

(Courtesy : *News from Ghana*)

Turkish scientists fight cancer with grapefruit juice

After years of research, a group of 11 scholars from various Faculties of the University of Istanbul have found out that grapefruit is good for the medical treatment of cancer. This group includes Prof. Atif Sengun, Chief of the Department of Radiology of the Faculty of Art and Sciences, Prof Fikret Baydur, Dean of the Faculty of Chemistry, Prof. Bulent Berkarda, Dean of the Cerrahpasa Medical Faculty, and in an article published in "Turkish Chemical Transactions" they announced this new method to the world.

The scholars made experiments on guinea-pigs. First, they injected 2, 5 billion cancer cells into the guinea-pigs and then injected grapefruit juice. The experiment revealed that the cancer tumours were destroyed or rejected by the body.

Guinea-pigs not treated with grapefruit juice died within 20 days. The scholars explained that the vitamin C in grapefruit didn't have any effect on the medical treatment, and added that research is underway to determine the special characteristic of the grapefruit in treating cancer. **(Courtesy** : *New Spot, Turkish Digest—June 4, 1982*).

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Political Science

1. Asha Ram. Sthaniya samaj mein samaj sangharsh sahayog evam rajnitik sanskriti. Meerut University.

2. Bandhu, K.R. Political ideas of Annie Besant. Meerut University.

3. Banshi Dhar. Police administration in Meerut District. Meerut University.

4. Bhatnagar, Bina. Landmarks in Indian politics (1966-80): An appraisal. Meerut University.

5. Bhatnagar, R.P. Uttar Pradesh mein bhoo-rajaswa prashasan. D. Litt. Meerut University.

6. Chadha, Virendra Kumar. Sino-Indian relations in post-Mao era since 1976 to the present day. Meerut University.

7. Dixit, Ram Nath. Class conflict and power in urban community. Meerut University.

8. Garg, J.P. The role of American zionism in the establishment, progress and the stability of the Sovereign State of Israel. D. Litt. Meerut University.

9. Inder Pal. Sthaniya samaj mein rajnitik dal ka swaroop evam karya: Meerut zile ka ek adhyayan. Meerut University.

10. Johri, Jitendra Mohan. The role of Communist Party of India in parliament 1952-1967. Meerut University.

11. Kawal Jit Kaur. United Nations' relief operations: A case study of Bangla Desh 1971-73. Meerut University.

12. Malhotra, Punam. Janta videsh niti. Meerut University.

13. Mithilesh Kumari. Bhartiya prajatantra ka swarup: Navya vedantik drishtikon. Meerut University.

14. Mohanan, B. Caste politics: A comparative study of Tamil Nadu and Kerala. University of Kerala. Dr. V. Gangadharan Pillai, Department of Politics, University of Kerala, Kariavattom.

15. Monykutlan, V. Forest administration in Kerala. University of Kerala. Dr. K. Sadasivan Nair, Department of Politics, University of Kerala. Kariavattom.

16. Rakesh Kumar. Sangharsh ke swarup: Bhartiya gramin parivesh. Meerut University.

17. Satbir Singh. The Haryana Legislative Assembly at work 1966-81. Maharshi Dayanand University. Dr. Partap Singh, Lecturer, Department of Political Science, Maharshi Dayanand University, Rohtak, and Dr. J.R. Siwach, Reader, Department of Political Science, Kurukshetra University, Kurukshetra.

18. Saxena, Geeta. Super powers and the Indian sub-continent (1962-1982). Meerut University.

19. Sitab Singh. A pattern of leadership: A study of eight villages in Western U.P. D. Litt. Meerut University.

20. Tandon, Suresh Kumar. Origin and development of the institution of Panch Piaras: A political study. Meerut University.

21. Tyagi, Pratima. Representation in local political and social institutions. Meerut University.

22. Vashishtha. Vikash Chandra. A case study of Janta Party and its leaders. Meerut University.

23. Vincent, V.T. The catholic church and the politics of education. University of Kerala. Dr. Josechander, Institute of Correspondence Courses, Kariavattom.

Law

1. Agarwal, Anand Prakash. Indian nationals earning abroad: Their taxation, problems and prospects. Meerut University. Dr. D.D. Kaushik, Meerut College, Meerut.

2. Sarda, Ashok Kumar. Pharmaceuticals multinationals and legal controls in India. Meerut University. Dr. D.D. Kaushik, Meerut College, Meerut.

Military Science

1. Bajia, Dalip Singh. Development in armament technology in India since 1947. Meerut University

2. Gandherv, Nirdosh Singh. Indo-Pak military balance (1947-1980). Meerut University.

3. *Mishra, Raj Narayan.* The Indian Ocean and India's security. Meerut University.

Education

1. Joshi, Anuradha. Evolvement of an instructional strategy for teaching elements of science to class IXth students of M.P. State. University of Indore. Dr. D.N. Sansaswal, Lecturer, Department of Education, University of Indore, Indore.

Commerce

1. Bansal, Lalit Kumar. The role of non-bank financing institutions in the funding of large and medium industries in Panjab and Haryana. Panjab University. Dr. M.L. Tandon, Reader, Department of Commerce and Business Management, Panjab University, Chandigarh.

2. Garga, Krishan Chanda. Unionisation among officers in public sector banks. Panjab University. Dr. J.L. Rastogi, Reader, Department of Commerce and Business Management, Panjab University, Chandigarh.

3. Chawla, Radhey Shyam. Commercial bank lending to small scale industries in Haryana. Panjab University. Dr. Bidhi Chand, Reader, Department of Commerce and Business Management, Panjab University, Chandigarh.

4. Chowdhury, Ranjit Kumar. Financing of small scale industries in Bangladesh. Panjab University. Prof. S.D. Tripathi, Department of Commerce and Business Management, Panjab University, Chandigarh.

5. Tulbagh Singh. Financial management of cooperative agro-industrial processing undertakings in Punjab and Haryana. Panjab University. Dr. B.L. Bansal, Prof., Department of Commerce and Business Management, Panjab University, Chandigarh.

6. Gupta, Sohan Lal. A study of commercial bank branch manager's effectiveness in relation to personality, job satisfaction and adjustment. Panjab University. Dr. A.K. Srivastava, Reader, Department of Commerce and Business Management, Panjab University, Chandigarh

7. Krishan Kumar. External corporate reporting in Indian industries: A study of evolution and evaluation of disclosure practices. Panjab University. Dr. B.N. Mehrotra, Head, Department of Commerce and Business Management, Panjab University, Chandigarh.

8. Raghbir Singh. A study of consumer behaviour and demand for milk products in Chandigarh. Panjab University. Dr. S.P. Singh, Reader, Department of Commerce and Business Management, Panjab University, Chandigarh.

9. Siddique, Abu Hossain. Executive compensation patterns in industry and Government in Bangladesh. Panjab University. Dr. K.K Mangla, Lecturer, Department of Commerce and Business Management, Panjab University, Chandigarh.

Home Science

1. Kamini, S. Extension education village level workers A study of factors influencing their performance. University of Kerala. Dr. Rajammal P. Devadas, Director, Sri Avinashilingom Home Science College for Women, Coimbatore.

HUMANITIES

Philosophy

1. Pandey, R.S. Integral yoga of Sri Aurobindo: A critical and comparative estimate. Meerut University.

2. Rajesh Kumar. An examination of Gandhi's conception of truth and non-violence. Meerut University.

3. Vinayak, J.S. Sri Guru Nanak Dev ka samaj darshan; Sameekshatmak vivechana. Meerut University.

LANGUAGE & LITERATURE

German

1. Valsala Kumari, V.S. Humour as a structural element in Bertolt Bercht's works. University of Kerala. Dr. Bernard Fenn, Department of German, University of Kerala, Trivandrum.

Punjabi

1. Rajinder Kaur. Bhai Veer Singh rachit chamatkaran da alochnatmak adhyayan. Panjab University. Prof. V.N. Tewari, Department of Panjabi, Panjab University, Chandigarh.

Hindi

1. Arora, Suresh Dwivedi yugeen sahitya mein vyang. Himachal Pradesh University. Shri Harvansh Lal Sharma, Department of Hindi, Himachal Pradesh University, Simla.

2. Lohia, Bhavan. Hindi upanyason mein chitrit parivarik vighatan, 1950-80. Himachal Pradesh University. Dr. Rajdeo Singh, Department of Hindi, Himachal Pradesh University, Simla.

3. Maheshwari, Suman Lata. Hindi mein pratibandh kavita. Himachal Pradesh University. Dr. Lallan Rai, Department of Hindi, Himachal Pradesh University, Simla.

Malayalam

1. Krishnan Nair, B.K. Arthalankara in Manipravala: A study with reference to selected works. University of Kerala. Dr. T. Bhaskaran, Department of Malayalam, University of Kerala, Kariavattom.

History

1. Awasty, Indira. An analytical study of the emerging leadership in the Indian army since independence in socio-historical prospective. University of Indore. Dr. Sushil Kumar, Prof., Department of History, Indore Christian College, Indore, and Dr. W.S.K. Phillips, Indore School of Social Work, Indore.

2. Chejara. Choth Mal. Parmar yugeen Malwa ka samajik jiwan, 10 vin shadi se 13 vin shadi tak. University of Indore. Dr. B.N. Luniya, Ex-Principal, Govt. Arts & Commerce College, Indore.

3. Mathur, Lalita. Ascendency of the British power and administration under Moira, 1813-1823. University of Indore. Dr. C.K. Tiwari, Head, Department of History, University of Indore, Indore.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Choudhry, Satya. A study of the relationship between the creative thinking abilities of student-teachers and their class-room verbal behaviour. University of Delhi.

2. Latkar, Kamalini N. Personality differences of successful candidates pursuing different courses of study in colleges. Nagpur University.

3. Nageswara Rao, V. A study of family interactions in the anxiety neurotics. Bangalore University.

4. Namboothiry, P.N. Krishnan. Motivation and expectation realization of employees in selected industries in the industrial belt of Alwaye. University of Cochin.

5. Rangari, Ashok Damodar. Comparative study of the scheduled caste and the non-scheduled caste college students of Aurangabad. University of Poona.

6. Singh, Ashok Kumar. Job involvement, participation and security—insecurity as factors influencing job satisfaction of blue-collar industrial workers. Magadh University.

7. Thapa, Komila A study of the behavioural correlates in clinical conditions and states suggestive of altered states of consciousness Bangalore University.

Sociology

1. Narayanswamy, Indira. The religion, family and economic activity of the Nattukottai Chettiars: Re-examination of the Weberian Thesis on religion and economy. University of Poona.

2. Sasidharan Nair, P. Social context of educational system: A study of school education in Kerala. University of Kerala.

Social Anthropology

1. Sen, Aloknath. Mass media and communication system: An anthropological study in the rural urban complex. University of Calcutta

2 Subba Reddy, B.V. Tradition and transition: A study of socio-cultural change among the Yanadi of Andhra Pradesh. Sri Venkateswara University.

3. Vijaya Prakash, Peethala. Lithic cultures and palaeo environment of Gambheerum River Valley, Coast Visakhapatnam. Andhra University.

Political Science

1. Bandyopadhyay, Bholanath. The political ideas of Binay Kumar Sarkar. University of Calcutta.

2. Baruah, Nilim Kanta. A century of primary education in Assam (1874-1974). Gauhati University.

3. Hans Raj. Rural leadership in Jammu District. University of Jammu.

4. Honap, Lalita Shrikant. Political socialization of college girls in Poona. University of Poona.

5. Jain, Tripatjit. Politics and social thought of Sir Pherozeshah Mehta. University of Rajasthan.

6. Kapase, Ramchandrarao Ganpatrao. Municipal Government in Kolhapur, 1948-72: A case study. Shivaji University.

7. Mahapatra. Anadikumar. Social change and political participation in village India: A case study of the Santals in West Bengal. University of Calcutta.

8. Majumdar, Satyendra Chandra. A century of Calcutta University: A study of administration 1857-1957. Gauhati University.

9. Mehta, Harendra Chhotalal. Right to equality as interpreted by the Indian judiciary (1950-57). University of Poona.

10. Powar, Suresh Vishram. Co-operative leadership and politics in rural Maharashtra with special reference to the Satara District. Shivaji University.

11. Samanta, Amiyakumar. Left extremist movement in West Bengal: A study in micropolitics. University of Calcutta.

12. Sudarsanam, Padam. Organisation structure and its impact on the corporate performance of selected public sector road transport corporations in India. University of Poona.

Economics

1. Acharya, G.C. An analysis and appraisal of industrial relations in Rajasthan. University of Rajasthan.

2. Bagchi, Dilip R.N. Agricultural development in Rajasthan: The regional aspects. Sardar Patel University.

3. Bhatnagar, Urmil. Madhya Pradesh ke anusuchit vyavsayik bankon ke vikas ka tulnatmak adhyayan. Vikram University.

4. Choudhury, Bibhash Ranjan. Socio-economic problems of Cachar since partition. Gauhati University.

5. Deshpande, Prabhakar Anandrao. Cooperative land development banks in the Vidarbha region: A study based on the cooperative land development banks in Nagpur, Wardha, Chandrapur, and Bhandara Districts. Nagpur University.

6. Dutta Choudhury, Arun Kumar. Some aspects of socio-economic conditions of Karimganj since independence with special reference to community development. Gauhati University.

7. George, P.P. Economics of higher education in Tamil Nadu. M.S. University of Baroda.

8. Jit, Nabin Kumar. Studies in the economic history of Orissa. (1833-1897). I.I.T., Kharagpur.

9. Khadka, Narayan. Public enterprise in Nepal: Its financial performance in relation to government budgets. University of Poona.

10. Nadi, Krishna Raghavendra. Efficiency of public expenditure on social services: A case study in cost benefit analysis of general higher education in Karnataka. Karnatak University.

11. Nahargadkar, Y.M. Government budgeting at the state level: A case study of M.P. Bhopal University.

12. Narayanan Nair, K. Bovine holdings in Kerala: An analysis of factors governing demand and supply. University of Kerala.

13. Padoshi, Anil Ramchandra. A study into the process of transformation of the agricultural economy of Goa 1962-63 to 1977-78. Karnatak University.

14. Passah, Philomath. Some aspects of the economy of Meghalaya. Gauhati University.

15. Ramachandrudu, Gadena. A study of population growth and inter-district variation in Andhra Pradesh. Andhra University.

16. Singh, Rajeshwar Prasad. Inefficient working of the Bihar State Electricity Board: An economic analysis and measures for improvement. Magadh University.

17. Sinha, Kamini. An economic study of cooperative credit in Bihar with special reference to Bihar State Cooperative Bank, 1951-1980. Magadh University.

18. Tejomurti, Atal. University library finances in Madhya Pradesh: A comparative study. Vikram University.

19. Venkatesan, Venkatachalam. Planning and implementation of agricultural development in India with special reference to Maharashtra. University of Poona.

Law

1. Paranjape, N.V. Probation of offenders in India with special reference to M.P. University of Jabalpur.

Public Administration

1. Pachauri, Surendra Kumar. Rural development in Andhra Pradesh with special reference to backward tribal areas of Srikakulam District. Osmania University.

2. Sogani, Meena. Role of the Chief Secretary in state administration in Rajasthan. University of Rajasthan.

Education

1. Arna, S.C. A study of growth of scientific concepts among elementary school children. Bhopal University.

2. Banshlal, Ramnauth Dev. The spiritual element in the educational philosophy of Mahatma Gandhi. M.S. University of Baroda.

3. Cherles, Dorothy Lali. Developing language skills in adults attending English improvement courses. M.S. University of Baroda.

4. Chattopadhyay, Sikha. Besant, Malaviya, the Maharaja of Darbhanga and the emergence of the Banaras Hindu University: The first denominational University in India. Jawaharlal Nehru University.

5. Hari Prakash. Mental health as a correlate of intelligence education, academic achievement and socio-economic status. University of Jammu.

6. Krishnan, K. A critical comparative study of the secondary school science curricula of Kerala and Tamil Nadu. University of Kerala.

7. Kazhippalil George. The impact of the catholic missions on education, literature and social life of North-East India (1890-1980) with special reference to Don Bosco's Philosophy of education. Gauhati University

8. Lahi, C. Mabel. A critical study of the work experience programme in secondary schools of Kerala. University of Kerala.

9. Lalini, Varanasi A study of the social, educational and psychological background of the rural leaders and its relation to their democratic vs authoritarian attitude. Osmania University.

10. Mishra, K.S. Effect of children's perception of home and school environments on their scientific creativity. University of Rajasthan

11. Pai, Sudhakar Ganesh. Preparation and tryout of curriculum in environmental studies leading to lifelong education for college students. M.S. University of Baroda.

12. Pandey, Babau. A study of the problems of universities in U.P. and remedial measures adopted since 1947. University of Gorakhpur.

13 Patel, Sunilkumar Somabhai. An investigation into the role of general ability of pre-primary school children in relation to reading readiness. Sardar Patel University.

14. Ramesh, G. Theory and practice of education in Herbert Read. Osmania University

15. Ranvir Singh. Some personality correlates of creativity: A study of Indian science, arts and commerce students. University of Rajasthan

16. Sariwat, Lakkana. An investigation into the mechanical aptitude of the students studying in Mathayom 3 of educational religion no. 1 of Thailand. Sardar Patel University.

17. Satender Kumar. An investigation into the questioning patterns of the social studies and science teachers in the English medium schools. M S. University of Baroda.

18. Shamima Banoo. Sex differences in parental press at several socio-economic levels. University of Jammu.

19 Sukumaran Nayar, V. Educational ideas of Swami Vivekananda. University of Kerala.

20. Vishiesh Kumari. A critical study of educational philosophy of Krishnamurti. University of Jammu

Commerce

1. Ammannaya, K. Keshava. Performance budgeting and employee participation: A participation model for Indian banking industry. Mangalore University.

2. Awasthy, Ram Ratan. Problems of rural finance in northern region of Madhya Pradesh with special reference to Chhatarpur District. Jiwaji University.

3. Bapa Rao, T. A study of the financial institutions of India with reference to the A P. State Financial Corporation Nagarjuna University.

4. Gogte, Jyoti Jayant. Management of working capital in large scale engineering industry in and around Pune for the period 1968-69 to 1977-78. University of Poona.

5. Jena, Ramakanta Statistical analysis of company finances in India. Utkal University

6. Kelkar, Sharad Ramachandra. Construction and standardization of unit tests in mathematics for Standard VIII (Marathi medium) based on the syllabus of Maharashtra State. University of Poona.

7. Pandit, Anilkumar Vishnu. A study of casual and contract labour in the building construction industry in the Poona region. University of Poona.

8. Ray, Debabrata. Attitude of labour towards management in the newly developed industrial areas, with special reference to the government managed industries and the Government of India undertakings in Nasik Industrial Complex. University of Poona.

9. Sabooni, Mohammed Javid. Paper industry in India: Problems and prospects. University of Poona.

10. Sahu, Mani Ram. Gwalior sambhag mein krishi shram. Jiwaji University.

11. Sharma, Dev Karan. Madhya Pradesh rajya ka lok vyay: Ek alochnatmak adhyayan. Vikram University.

12. Singh, Vinay Kumar. Labour welfare activities in Bihar with special reference to Telco. Magadh University.

Management

1. De, Prasanta Kumar. Some quantitative models for project evaluation and capital budgeting. I.I.T., Kharagpur.

HUMANITIES

Philosophy

1. Bandyopadhyay, Nikhilesh. Perception in arts. University of Burdwan.

2. Bhalla, Krishna. Patanjal yog tatha Sri Aurobindo yog ka tulnatmak adhyayan. University of Jabalpur.

3. Guha, Sathi. A study of some contemporary views of consciousness. University of Burdwan.

4. Gupta, N.N. Samuhak kriyaon ka swarup. University of Rajasthan.

5. Khalsa, Surjeet Kaur Gurucharan Singh. The nature of consciousness. University of Poona.

6. Paranjape, Kalpana Manohar. The beginning of philosophic, religious and scientific thought in the history of mankind and Indian contribution to it. University of Poona.

Linguistics

1. Aneja, Mohinder Paul. A comparison of the phonology and grammar of Hindi and French languages. University of Poona.

2. Patrikar, Moreshwar Sadashvirao. A linguistic analysis of the errors in written English of the students of B.A. class of the colleges in urban centres of Vidarbha. Nagpur University.

LITERATURE

English

1. Aneja, Baldev Raj. Walt Whitman as a poet of cosmic consciousness. Meerut University.

2. Dushiant Kumar. Poetic theory and practice of T.S. Eliot. University of Jammu.

3. Ray, Sunita. A study of imagery in Hardy's poetry. University of Calcutta.

4. Sharma, Manju. The orient in the novels and short stories of William Somerset Maugham. Jiwaji University.

5. Sharma, V.C. Samuel Johnson's criticism of the seventeenth and eighteenth century tragic drama. University of Rajasthan.

6. Tripathi, Surendra Mohan. Arthur Miller and the contemporary American society. University of Gorakhpur.

7. Valeria, M. A study of Gerard-Manley Hopkings as a religious poet. University of Delhi.

8. Vatsala, P. The plays of Harold Pinter: A study. Sri Venkateswara University.

9. Yohan, Burmin Joseph. A study of structural patterns in Hemingways' short fiction. University of Indore.

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2. Chakrabarti, Amita. Manifold aspects of social life as reflected in Dandin Dasakumaracarita: A study. University of Calcutta.

3. Chaudhary, Ram Das. Satvik pauranon mein apanmeiye shabdon kee sameeksha. University of Gorakhpur.

4. Kalra, Raj Rani. Kaviraj-krit Raghavpandveeyam mahakavya ka samalochnatmak adhyayan. Meerut University.

5. Mishra, Shyam Narayan. Kavyaprakash kee pramukh do tikaon (pradipodyota) ka tulnatmak adhyayan. University of Gorakhpur.

6. Pandey, Kailash Pati. Jyodey mahakavya ka sameekshatmak adhyayan. University of Gorakhpur.

7. Paradkar, Nalini. Kathasaritsagare : A study. Osmania University.

8. Rita Devi. A critical and comparative study of the commentaries on Vasu Gupta's Shiv sutras. University of Jammu.

9. Satyananarayana Murty, Sripada. The figure slesa : A complete study. Andhra University.

10. Sharma, Maya Devi. Vaamn puran ke upakhyanon ka alochnatmak adhyayan. University of Rajasthan.

11. Shukla, Ashwani Kumar. Therwad ko budhghosh kee den. University of Gorakhpur.

12. Singh, Krishna Chandra. Pauranon mein srishti aur pralay ka nishyan. University of Gorakhpur.

13. Tripathi, Indrawati. Lakshanavali tatha Lakshanamala ka samalochnatmak adhyayan aur unvad. University of Gorakhpur.

Pali

1. Barua, Pranranjan. Buddhism in Nepal. University of Calcutta.

Dogri

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Hindi

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2. Bhargava, Murari Lal. Adhunik pratinidh mahakavyon mein chritra srishti ka swarup. Jiwaji University.

3. Chaudhary, Snehmayi. Adhunik Hindi kavya mein parampara aur prayog (1935-1960). University of Delhi.

4. Deodhar, Mangala Shripad. Maithilisharan Gupt ke kavya mein natakiyata. University of Poona.

5. Dubey, Ram Naresh. Hindi bhakti kavya mein kram evam puna janam siddhant. University of Gorakhpur.

6. Goswami, Akshayakumar Vitthalnathji. Hindi ke ashtachapeter Pushti margiya kavi : Ek vivechan. M.S. University of Baroda.

7. Goswami, Madhur Behari. Shri Lalit Kishoriji : Vyaktitva aur krititva. University of Delhi.

8. Henry, Ramala E. Premchand sahitya mein Bharatiya sanskriti kee abhivyakti. University of Saugar.

9. Jaju, Taramati Balkrishna. Comparative study of poetry of Sumitranandan Pant and Balkavi T.B. Thombre. Shivaji University.

10. Kiran Singh. Hindi ka diary sahitya. University of Gorakhpur.

11. Mishra, Chitralekha. Mahakavyatmak upanyas ka swarup aur Hindi ke mahakavyatmak upanyas. University of Saugar.

12. Narayana Reddy, Tadi Venkata. A study of mythological images and symbols in modern Hindi poetry. Andhra University.

13. Ojha, Rakesh. Vrindavanlal Verma ke natakon ka adhyayan. Awadhesh Pratap Singh University.

14. Pachori, Suraj Prasad. Pratik shaili ke naye Hindi natak. University of Saugar.

15. Pandey, Radhey Shyam. Sur aur tulsi ke kavya par Vedanta prabhav. University of Calcutta.

16. Rajender Singh. Bal Mukand Gupta aur unke yug ka nibandh sahitya. University of Delhi.

17. Ramachandran, K. Hindi ke kavi Jai Shankar Prasad aur Malyalam ke kavi Kumaran Ashan ke kavyon ka tulnatmak adhyayan. Meerut University.

18. Saraswathi, M. Hindi aur Telugu lok gathavon mein veera bhavana. Osmania University.

19. Sharma, Anjli. Jainendra ke upanyason mein nari patron ka manovishleshnatmak vishleshan. Vikram University.

20. Sharma, Gyan Prakash. Khari Boli kee hasya vyangmayee kavita ka sanskritik vivechan. Meerut University.

21. Sharma, Krishna Kumari. Hindi kahani sahitya mein narichitran ke vividh a-ayam. *D. Litt.* University of Jammu.

22. Sharma, Satya Prakash. Hindi ke samajik upanyason mein snagharsh kee chetna. Vikram University.

23. Shashi Bala. Aahindi bhashi chhatron (visheshteh panjabi bhasion) kee Hindi ke doshon ka ek adhyayan. Meerut University.

24. Singh, Pushp Pal. Adhunik Hindi kahani mein yugbobh, 1950-80. *D.Litt* University of Jammu.

25. Tripathi, Atma Ram Poorvi Awadhi kee gramyea jiwan sambandhi shabdavali ka adhyayan. University of Jabalpur.

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27. Tripathi, Vijay Lakshmi. Tulsi sahitya mein sanskrit mulak rashtriya chetna. Jiwaji University.

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2. Bhirud, Pramila Ghanashyam. Marathi kadanbarit lekhikani ghatajeli Bhar (1857 to 1947). University of Poona.

3. Divekar, Kalyani Shridhar. Akonisavya shatakatil Marathi gadyashailicha vikas (1835 to 1882) University of Poona.

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2. Dutta, Ratna. Physical environment and resource potentiality of the Paraphine River basin, West Bengal. University of Calcutta.

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8. Rao, D.S. City-hinterland relationship in Andhra Pradesh. Sri Venkateswara University.

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10 Udhaw Ram. Periodic markets and rural development in the lower Ganga Ghaghra Doab University of Gorakhpur.

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JADAVPUR UNIVERSITY
CALCUTTA-700 032

Employment Notification No.
A2/C/3/82
Dated : 15 June, 1982

The University invites applications in the prescribed form for the following posts:

1. **Professor**
   - (a) *Mechanical Engineering*—Three Posts.
   - (b) Metallurgical Engineering—Three Posts.
   - (c) Electronics & Tele-Communication Engineering—One Post.
2. **Reader**
   - (a) Mechanical Engineering—One Post(Temporary). with the prospect of being permanent.
   - (b) Metallurgical Engineering—Two Posts.
   - (c) Electronics & Tele-Communication Engineering—One Post.
   - (d) *Geological Science — Two Posts.*
3. **Workshop Superintendent** One Post.
4. **Lecturer**
   - (a) Mechanical Engineering—One Post (likely to increase) plus Two temporary posts with the prospect of being permanent.
   - (b) Metallurgical Engineering—One Post.
   - (c) Electrical Engineering — One Post.
   - (d) Geological Science—One Post.
   - (e) Sanskrit—One Post.

Qualifications for Professor Posts

Essential

- (i) Research degree of Doctorate standard or published papers *of an equally high standard.*
- (ii) Consistently good academic record with at least high Second Class Master's degree in the relevant subjects of Indian Universities or equivalent.
- (iii) Ten years' teaching/research/industrial experience of which at least five years must be in teaching at post-graduate level.
- iv) Proven ability to guide research.

Qualifications for Reader Posts at 2(a), 2(b) & 2(c)

Essential

- (i) At least high Second Class Master's Degree *in* the relevant subjects of Indian Universities or equivalent with consistently good academic record.
- (ii) Five years' research/industrial teaching experience of which at least three years must be in teaching at an Engineering degree *College/University.*

Qualifications for Reader Post at 2(d)

Essential

- (i) Research degree of Doctorate standard or published work of an equally high standard.
- (ii) Consistently good academic record with at least high Second Class Master's Degree in the relevant subject of Indian Universities or equivalent.
- (iii) Five years' research or teaching experience of which at least three years must be in post-graduate level.

Qualifications and other particulars for the post of Workshop Superintendent at serial No. 3.

Essential qualification

- (a) A Bachelor's degree in Mechanical Engineering, with 5-years industrial experience, after graduation, in maintenance production of machines.
- (b) *The incumbent of the post* shall be a non-vacational staff.
- (c) The post of Workshop Superintendent shall be treated as a teaching post and his job requirement would be to plan and supervise Workshop Technology and Training programme.
- (d) *He will be responsible for* proper running of the Workshop.
- (e) In addition to his normal duties as Workshop Superintendent he shall have to perform such other duties as assigned by the Professor-in-Charge of Mechanical *Engineering* Department.

Qualifications for Lecturer Posts at 4(a), 4(b) and 4(c)

Essential

- (i) At least high Second Class Master's Degree in the relevant *subjects of Indian Universities* or equivalent with consistently good academic record.

Qualifications for Lecturer Posts at 4(d) and 4(e)

Essential

- (i) Research Degree of Doctorate *standard or published work* of an equally high standard.
- (ii) Consistently good academic record with at least high Second Class Master's Degree in the relevant subjects of Indian Universities or equivalent.

Explanatory note in respect of all kinds of posts at serial nos. 1—4.

Candidates should either have an average *of 55% of the two examinations* prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations *separately. The* essential qualifications may be relaxed provided that the Appointment Committee is of the view that a candidate is otherwise suitable for the *post as per evidences cited by him.*

Desirable for Professor Posts

- (i) Experience of organising laboratories.
- (ii) Corporate Membership in recognised professional bodies.

Desirable for Reader Posts at 2(a), 2(b) & 2(c)

- (i) Research degree or published papers of high standard.
- (ii) Corporate membership in recognised professional bodies.
- (iii) Ability to guide research.

Desirable for Reader Post at 2(d)

Ability to guide research.

Desirable for Lecturer Posts at 4(a), 4(b) and 4(c)

Teaching Industrial Research experience of two years.

For the post of Lecturer in Electrical Engineering

— Preferably be a Ph.D. in Electrical Machines.

Desirable for Lecturer Posts at 4(d) and 4(e)

Two years' research or teaching experience upto Honours standard.

The requirement of research degree may be relaxed in case of candidates *having brilliant academic* career with research experience.

Note: For the post in the Department of Sanskrit, Title in Vedanta, Tarka, Nyaya, Mimansa, Vyakarana (Panini) and Vedic, such as Vedantatirtha, Tarkatirtha, Nyayatirtha etc. with teaching research experience and published work of high standard may be accepted as equivalent of the essential qualifications prescribed above.

Specialization for Professor Posts

- 1(a) Machine Design—One Post.
  Heat Power—One Post.
  Open to all specialization in Mechanical Engineering—One Post
- 1(b) Physical Metallurgy Foundry Mechanical Working Welding & Joining of Metals/Powder Metallurgy—One post
  Metallurgy of Iron and Steel making/Extractive Metallurgy of Non-Ferrous Metals and Alloys — Hydrometallurgy Electrometallurgy & Corrosion—One post.
  Either of the specializations, as required for the above cited two posts. (One post)
- 1(c) Computer Science and Engineering.

Specialisation for Reader Posts

- 2(b) Foundry Welding & Joining of Metal—One post.
  Extractive Metallurgy/Hydrometallurgy and Electrometal-

lurgy—One Post.

2(c) Computer Science and Engineering.

2(d) Coal Geology—One post. Preference to specialization in Palaeontology—One post.

Specialization for Lecturer Posts

4(b) Extractive Metallurgy of Ferrous/Non-ferrous metals or Physical Mechanical Metallurgy.

4(e) In order of preference, as follows:

(i) Mimamsa
(ii) Samkhya
(iii) Navyanyaya
(iv) Smrti

Proficiency in any two or more of the above will be preferred. M.A.s are not eligible for this post. Only Pandits trained in traditional system (Tol or Chatuspathi) are eligible.

Those who have applied for the post of Reader in Electronics & Telecommunication Engineering with the specialization in Computer Science and Engineering in response to the University Employment Notification No. A2/C/1/82 dated **16 3.82** need not, however, apply again with reference to the post at serial No. 2(c).

Scale of Pay

Professor

Rs. 1500-60-1800-100-2000-125/2-2500/-

Reader

Rs. 1200-50-1300-60-1900/-

Lecturer

Rs. 700-40-1100-50-1600/-.

Last date of receiving application is **10th July, 1982**.

Application forms are obtainable from the University office during working hours on payment of **Rs. 2**/- or by post on payment of **Rs. 2**/-+**Re. 1**/- as postal charges. No travelling allowance is admissible to candidates called for interview. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their application through proper channel. Choice of the Appointment Committee will not necessarily be confined to applicants only. Canvassing in any form will disqualify a candidate.

REGISTRAR

It Pays

to

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in

University News

JAMIA MILLIA ISLAMIA

Jamia Nagar, New Delhi-110025

Advt. No. 3/1982-83

Applications on the prescribed form which can be had from the Registrar's Office on any day (except Sunday and Holiday) between 10.00 a.m. and 12.00 Noon or by sending a self addressed and stamped (50 paise) envelope of 10x23 cms. are invited along with the crossed Indian Postal Order or Bank Draft of **Rs. 3/-** for the following posts so as to reach the Registrar by 1.00 p.m. on **21.7.1982.**

Ability to teach in Urdu and Hindi is a desirable qualifications for teaching posts and knowledge of Urdu and Hindi is essential for non-teaching posts.

D.A., C.C.A., H.R.A., P.F. Gratuity, Pension and other benefits will be given according to Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of the Selection Committee in exceptional cases.

1. One Reader in Education (Science Education) Grade : Rs. 1200-1900 (Permanent)

Good academic record with a first or high second class Master's Degree of an Indian University or an equivalent foreign qualification. A Doctorate degree or equivalent published work in Science Education or in any discipline of Natural Sciences, and independent published work of a high standard in addition to the published work referred to above and at least 5 years' experience of teaching Hons./Post-graduate classes or 10 years' experience of teaching undergraduate classes.

Desirable

Interest and knowledge of scientific discipline other than his own and ability to guide all science teaching in a Teachers' Training Institution.

2. One Reader in Sculpture. Grade: Rs. 1200-1900 (Permanent)

Essential

1. A first or high second class Master's degree or National Diploma or equivalent Degree/Diploma in Art.

2. Five years experience in teaching of University level.

3. Experience of research work or professional eminence as a Sculptor with participation in National/International level Art Exhibitions.

4. Specialization in Sculpture.

Desirable

(i) National Award in Art.

3. **Five Lecturers: Two in Psychology and one each in Sociology, Geography (Cartography)—Permanent and History-likely to be made permanent (Grade: Rs. 700-1600).**

(a) A Doctor's degree or **research** work of an equally high standard; and;

(b) Consistently good academic record with 1st or high 2nd class Master's degree in a relevant subject or an equivalent degree of a foreign University ;

Provided that if the Selection Committee is of the view that the research work of a candidate, as evident either from his thesis or from his published work, is of very high standard, it may relax any of qualifications prescribed above.

For the post of Lecturer in Sociology experience in teaching/training in Applied Social Sciences projects is a desirable qualifications.

For the post of Lecturer in Geography (Cartography) the candidates should have offered the Mathematical Geography or Cartography at Master level. Preference will be given to those who have passed B.A./B.Sc. with Maths. or Statistics.

For the post of Lecturer in History, the candidates should have postgraduate degree in Medieval/Modern History with ability to teach History of Europe, Russia and U.S.A.

4. One Assistant Engineer (Grade: Rs. 650-1200)—Permanent

Essential

(1) Degree in Civil Engineering from a recognised University and 2 years experience after graduation or Diploma in Civil Engineering from a recognised Institution with minimum experience of 7 years. (2) Knowledge of Urdu.

Desirable

The candidate should be able to design R.C.C. work efficiently.

5. One Instructor in Metal Craft (Grade: Rs. 440-750)—Permanent

Essential

A first or high second class Diploma in Art or Craft in the particular craft of a recognised Institute.

Desirable

(1) Experience of work in Metal Craft at a professional level. (2) High School or its equivalent. (3) Working knowledge of Hindi/Urdu.

6. One Instructor in Dramatics (Grade: Rs. 440-750)—Permanent

Essential

(1) At least 2nd Division Higher Secondary. (2) Certificate Course in Theatre Workshop. (3) Two years experience as a Staff Artist, Director, Organizer and Producer of any registered drama organization/society. (4) Experience of lay-writing.

Desirable

Some teaching experience in dramatics in a School/College.

7. One T.G.T. in Agriculture (Grade: Rs. 440-750): Temporary likely to be made permanent

Essential

(1) At least second class degree of a recognised University in the subject concerned. (2) A University degree/diploma in teaching.

Desirable

At least two years experience in teaching Middle/High classes of a High/Hr. Sec. School.

8. One T.G.T. in Science (Physics) (Grade: Rs. 440-750)—Temporary

Essential

(i) B.Sc. (Hons.) in Physics or B.Sc. (Pass) in Physics, Chemistry and Maths., with at least IInd Division.
(ii) B.Ed. in IInd Division.
(iii) Certificates in Special Education (Teaching of handicapped children preferably, the mentally retarded and the orthopaedically handicapped.
(iv) Knowledge of Urdu.

Desirable

(i) Command over English language.
(ii) Keen interest in co-curricular activities and proficiency in such activities which may be useful for the handicapped children.

Ikram Husain Khan
REGISTRAR

CALCUTTA UNIVERSITY

SENATE HOUSE

CALCUTTA-73

Applications are invited for the posts of the Professors in the following Departments of University College of Medicine in the grade Rs. 1500-60-1800-100-2000-125/2-2500 plus admissible allowance. Higher initial salary within the grade may be given to an exceptionally qualified candidate :

(1) Department of Bio-Chemistry and Bio-Physics 1 Post.

(2) Department of Anatomy—1 Post. Centenary Professor of Anatomy.

Qualification—(a) A Doctor's Degree or published work of an equally high standard; recognised by the Medical Council of India or by this University in the relevant speciality and (b) consistently good academic record in the subject or in a relevant subject. The candidates shall have sufficient teaching experience of at least 7 years under graduate 5 year's Post Graduate teaching as Reader/Associate Professor in the speciality of which at least 4/5 years must be after obtaining post graduate qualification respectively, and production of research papers of outstanding merit and capacity to render efficient guidance to research students.

Provided that if the Selecting Authority is of the view that the research work of a candidate as evident either from his thesis or from his published work in standard journals and is of high quality it may relax any of the qualifications prescribed in (c) above.

Explanation—Consistently good academic record means overall record of all assessments throughout the academic career leading to the Master's degree which should at least be B+ or high Second Class. Practice in any form will not be admissible in case the selected person is a Medical Graduate. They shall have to satisfy further stipulation laid down by Medical Council of India for appointment to such posts.

The selected candidates will be placed on probation for one year which may be waived in exceptional cases. The appointment shall be subject to the rules laid down or to be laid down for the teachers from time to time.

Applications (seven copies) in prescribed form, (obtainable from the University Sales Counter on payment of **Rs. 5**/- or in case by post on sending a self-addressed **75 paise** stamped envelope of 27 cms x 13 cms size with crossed I.P.O. of **Rs. 5**/- value in the name of Calcutta University) should reach the undersigned not later than **23rd July**, 1982.

The choice of the Selection Committee may not necessary be confined to those who apply.

REGISTRAR

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

HYDERABAD-500007

ADVERTISEMENT NO. XI/82

Applications on the prescribed form together with the application fee are invited for the following posts in the Institute service so as to reach the undersigned on or before **26th July 1982**.

I. **Reader/Fellow** (Dept. of Arabic)
Scale of Pay: Rs. 1200-50-1300-60-1900.

Qualifications

Essential: (a) At least a second class Master's degree in Arabic or an allied subject. Good academic record with a Doctoral degree or equivalent published work. Evidence of being engaged (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials or (iv) teacher training and extension work at secondary/college level.

(b) About 5 year's experience of teaching and/or research with at least three year's experience as Lecturer or an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

(c) Specialisation in the teaching of Modern Arabic.

Desirable: Experience of preparing courses in Modern Arabic organising teacher training programmes, materials production and extension work in the subject concerned.

II. **Lecturer/Associate Fellow**

1. Department of Linguistics & Contemporary Engilsh.
2. Department of Phonetics & Spoken English (Temporary for one year)

Scale of Pay: Rs. 700-40-1100-50-1600.

Qualifications

Essential: (a) Consistently good academic record with first or high second class (B in the 7 point scale) Master's degree in English (or an equivalent degree of a foreign university). (b) A doctor's degree or research work of an equally high standard.

Desirable for post No. 1

Special interest in the field of Phonology or Psycholinguistics.

Desirable for post No. 2

1. A post-graduate degree or diploma in English Language teaching/English studies or Linguistics or phonetics or Applied Linguistics.

2. Experience of producing teaching materials for spoken English and organising E.L.T. programmes.

3. Experience of language laboratory work.

4. Training in General and Experimental phonetics.

Provided that any of the qualification prescribed in (a) above may be relaxed in the case of a candidate with research work of very high standard. Provided further that if a candidate possessing a doctor's degree or equivalent research work is not available or is not suitable, a person possessing a consistently good academic record (weightage being given to M.Phil/M. Litt or equivalent degree or research work of quality) may be appointed, provided he has done research work for at least two years or has practical experience in a research organisation/laboratory, on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equally high standard within five years of his appointment, failing which he will not be able to earn further increments until he fulfils these requirements.

General information

Post under II (2) is a leave vacancy for at least one year.

Post under I and II (1) are permanent.

The Institute pays allowances at Central Government rates with the benefit of Contributory Provident Fund-cum-Gratuity according to rules.

A higher start in the grade may be considered for specially qualified candidates.

Qualifications are relaxable in exceptional cases.

Due consideration will be given to candidates belonging to SC/ST for the posts of Lecturers/Associate Fellows.

Appointments to the posts of Fellows and Associate Fellows will be made on a contract for one year in the first instance, after which they will be considered for being appointed as Readers and Lecturers respectively on the recommendation of the Selection committee.

Selected candidates will be expected to participate in the teaching and research programmes in other departments also.

Selected candidates will be required to work at Hyderabad or at any of the Regional Centres of the Institute.

Applicants to substantive post will be on probation for one year in the first instance.

The Institute reserves the right to accept late applications in exceptional cases.

A candidate applying from outside India will be exempted from the submission of the application of the prescribed form and the payment of application fee.

Age of Retirement

60 years.

Instructions

1. Separate applications should be made for each post enclosing **seven copies of the list of papers published** with full particulars along with **one copy of each** publication.

2. Candidates not found suitable by the Selection Committee for the post they have applied for may be considered for a lower cadre post.

3. Candidates called for interview from a place outside Hyderabad will be paid a contribution towards their travelling expenses at the rate of second-class railway fare, including sleeper coach charges from the place of their work or residence, whichever is nearer, by the shortest route, subject to the production of a railway receipt.

4. A copy of the application form can be had from the Registrar, Central Institute of English and Foreign Languages, Hyderabad-500007 on payment of **Rs. 2/-** in person or by postal order payable to "Director, CIEFL" and by sending a self addressed envelope (10 x 23) duly stamped and indicating the name of the post applied for.

I.V. Chalapati Rao
REGISTRAR

PUNJABI UNIVERSITY

PATIALA

Advertisement No. 7-A/SPS/PRO/Estt./ June, 1982

Applications are invited for the following posts :-

1. **Professors** : (One each for Dramatic Art, Law and Education & Community Services) (Grade Rs. 1500-60-1800-100-2000-125/2-2500)

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Desirable Fields of Specialization

(i) **Professor in Law**
Law of Evidence
Law of Crimes
Hindu Law
Law of Marriage & Divorce in India
International Law

(ii) **Professor in Education & Community Services**
Adult Education
Economics of Education
Community Service

2. **Readers** : (One each in Defence Studies, Sanskrit, Hindi & Punjab Historical Studies) (Grade Rs. 1200-50-1300-60-1900)

Qualifications

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

Specialization

Reader in Hindi

Candidates should have specialized in area of research in any trend or discipline of modern Hindi Literature or should have specialized in Sanskrit, Eastern/Western poetics and Philology or in stylistics, aesthetics and other modern approaches to literature.

Reader in Punjab Historical Studies

The candidate should have (i) knowledge of Persian in order to handle the source material (ii) aptitude for research and knowledge of Modern History of Punjab in order to handle Oral History Cell.

3. **Reader in Law** : (One) (Grade Rs. 1200-50-1300-60-1900)

Qualifications

At least second class Master's degree in Law from a recognised University or its equivalent degree Preference will be given to those who possess Doctorate in Law or published work of high standard.

Desirable

About five years experience of teaching and/or research, out of which at least three years should be as Lecturer or in an equivalent position.

4. **Reader in Business Management** (Marketing Area) (One) (Grade Rs. 1200-50-1300-60-1900)

Qualifications

(a) Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) Research or (ii) Innovation in teaching methods or (iii) Production of teaching materials.

(b) About 5 years experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position This condition is relaxable in the case of candidates with outstanding research work.

5. **Lecturers** : (One in Economics & Two in Human Biology including one leave vacancy upto 14.7.83) (Grade Rs. 700-40-1100-50-1600)

Qualifications

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.
Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the Qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing good academic record (weightage being given to M.Phil or equivalent degree or research work of *quality) may be appointed provided* he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Specialization

Lecturer in Economics
Quantitative Economics

Lecturer in Human Biology

Candidate should have specialised either in Biochemical genetics or Immunogenetics or Population genetics.

6. **Lecturer in Law (One)** (for Faridkot Centre)
(Grade Rs. 700-40-1100-50-1600)
(a) LL.M. degree and
(b) Good academic record with at least IInd class (C in the seven point scale) Master's degree from an Indian University in a relevant subject or equivalent degree from a foreign University.
Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard, it may relax the qualifications prescribed in (b) above.

7. **Research Assistant in Punjab Historical Studies (One)**
(For a period of one year in the Ist instance)
(Grade Rs. 550-20-650-25-750)

Qualifications

Master's degree in History with 55% or more marks. Candidates having research experience and/or specialized knowledge in the subject will be preferred.

Knowledge of Punjabi and aptitude for survey or field work are desirable.

8. **Director** (I.A.S. TRAINING CENTRE) : (ONE)
(Grade Rs. 1500-60-1800-100-2000-125/2-2500)

Qualifications

Qualifications would be same as for the post of Professor indicated at *Serial No. 1. However*, preference will be given to candidates holding suitable administrative experience in Educational Administration.

Registrar Office

9. **Superintendent Grade-I** : ONE
(Grade Rs 825-25-850-30-1000-40-1200-/50-1400-60-1580 + Rs. 100/- -Spl. Pay)

Qualifications

At least a Bachelor's degree from a recognised University with at least 10 year's service in a Government University/affiliated college office, atleast 3 years of which shall be in the capacity of Superintendent Grade-II or on a higher post.

Department of Physical Education

10. **Coaches** : FOUR
One each in Athletics, Hockey, Basketball and Cricket
(Grade Rs. 800-25-850-30-1000-40-1200-50-1400).

Qualifications

B.P. Ed. D.P. Ed. and must be a qualified Coach from National Institute of Sports.

Preference will be given to outstanding players who have atleast played in the Inter-University Tournaments in that game.

University Service & Instrumentation Centre

11. **Scientific Officer : ONE**
    (Grade Rs. 700-40-900-EB-40-1100-50-1300)
    At least second class B.E./B.Tech/M.Sc. with 2 years experience in operation of sophisticated instruments/repair and maintenance of modern instruments.

General

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth **Rs. 5/- (Rs. 2/-** for candidates belonging to Scheduled Caste/Tribes and Backward Classes) drawn in favour of the Registrar, Punjabi, University, Patiala, should reach the University by **22.7.82.** The forms can be had from the Production & Sales Officer, Publication Bureau, Punjabi University, Patiala, on payment of **Re. 1/-** by sending a crossed Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 x 10 cms. stamped with 50 paise postage which should be superscribed at the Top in bold letters REQUEST FOR APPLICATION FOR THE POST OF——.

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **26.7.82.**

REGISTRAR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

HYDERABAD

NOTIFICATION

Applications are invited for admission to the following M. Tech. courses in the University Constituent Colleges for the academic year 1982-83.

Engineering College, Anantapur-515002

1. M. Tech. Civil Engineering— Structural Engineering
2. M. Tech. Electrical Engineering— Power System.
3. M. Tech. Mechanical Engineering— Refrigeration and Air-conditioning.

Engineering College, Kakinada-533003.

1. M. Tech. Civil Engineering—Soil Mechanics and Foundation Engineering
2. M. Tech. Electrical Engineering— Power Systems (with emphasis on High Voltage)
3. M. Tech. Mechanical Engineering— Machine Design (with emphasis on Farm Machine Design)
4. M. Tech. Electronics & Communication Engg.—Instrumentation and Control systems.

Admissions will be made on the basis of marks obtained in B.E./B.Tech. examinations.

Application form and Prospectus can be had on requisition from the Principal, Engineering College, Anantapur-515 002 for the courses at Anantapur and from the Principal Engineering College, Kakinada-533 003 for the courses at Kakinana by enclosing a Demand Draft for **Rs 5/-** drawn in favour of the Registrar, Jawaharlal Nehru Technological University, Hyderabad on any scheduled Bank payable at Hyderabad and also a self addressed and stamped **Rs. 2/-** envelope of size 10 cms x 25 cms. The envelope should be superscribed 'Application forms for admission to M. Tech. courses'.

Application forms will be available for sale from the respective Principals from **28 6.1982.** Application completed in all respects should reach "THE DIRECTOR OF EVALUATION, JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, NAGARJUNASAGAR ENGINEERING COLLEGE CAMPUS, MASAB TANK, HYDERABAD-500 488 either in person or by post on or before **5-00 PM on 19-7-1982.**

No application, in person or by post, will be received after the last date.

REGISTRAR

UNIVERSITY OF INDORE

UNIVERSITY HOUSE
INDORE-452 001

No. : Estt./III/(7)/82
Dated : 15/6/1982

Applications in the prescribed form are invited for the following posts so as to reach the undersigned on or before **31st July, 1982** :-

(1) **Professor of Social Studies** - One— Rs. 1500-2500/-
(2) **Reader, Chemistry**—One—Rs.1200-1900/-
(3) **Reader, Life-Sciences**—One — Rs. 1200-1900/-
(4) **Lecturer, Life-Sciences**—One - Rs. 700-1600/-

Application Forms together with details of qualifications etc. can be obtained from the University Office on payment of **Rs. 3/-** in person or by sending a crossed Indian Postal-Order of **Rs 7.50** payable to the Registrar, University of Indore, Indore.

P. Viswanatham
REGISTRAR

ASSOCIATION OF INDIAN UNIVERSITIES

Applications are invited from College/University Teachers for admission to a BASIC LEVEL CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY AND EXAMINATIONS. The duration of the course is six months (1st August, 1983 to 28th February, 1983). The course is being offered from different Regional Centres like Delhi, Bombay, (Madurai, Shilong and Hyderabad) and will be conducted and coordinated by the Research Cell of the Association. A personal 'contact programme' at the centres is also planned.

Requests for prospectus and prescribed application forms, accompanied by a crossed Indian Postal Order for **Rs 5/-** drawn in favour of the Secretary, Association of Indian Universities and a self addressed stamped envelope (80 paise) should reach the undersigned. The last date for the receipt of applications in the prescribed form is **June 30, 1982** for non-sponsored candidates and **July, 15, 1982** for sponsored candidates.

Project Director (Examinations)
Association of Indian Universities,
6, DDA Building, Nehru Place,
New Delhi-19

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JULY 15, 1982

(From Left to Right) : Professor Siddheshwar Varma, Prof. Satya Bhushan, Vice-Chancellor, Mr. M. Hidayatullah, Vice-President of India, Shri B.K. Nehru, Chancellor, Sheikh Mohammed Abdullah, Pro-Chancellor and Professor J.R. Rathore, Registrar, at the Convocation of the University of Jammu.

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UNIVERSITY NEWS

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IN THIS ISSUE

Programmes for Colleges 459
Education University —A Necessity 460

Convocation

Structure & content of higher education 463
Cultural Heritage of North-Eastern India & NEHU 464

Campus News

National Seminar on Auditing 468
Communication course for teachers through APPLE 468
Osmania instals plain paper copier 469
Resturctured syllabi in Bharathidasan Varsity 469
Course in music appreciation 470

Agriculture

New Indo-US agricultural tie-ups 471
HAU boosts up pulse research work 471
UAS celebrates world environment day 472
HAU abolishes seat reservation 472
Research in Progress 473
Theses of the Month 474
Additions to AIU Library 478
Classified Advertisements 480

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor: M.S. Ramamurthy

Our Universities Need National Policy

D. K. Salunkhe*

A university is a place where heterogeneous collection of students of many interests gather for intellectual pursuits along with their teachers. The only way to improve a university is to evaluate it critically: is it a good or a poor university—what is it supposed to be and what should it be accomplishing? That is the only way we can measure the quality of a university.

If a Vice-Chancellor does not know these aspects, he does not have a yardstick to measure the quality of its product and production. As far as production is concerned, we have increased the number of our universities to over 110, but in the past 30 years the quality of our education *per se* has gradually declined to the point of no return.

Unfortunately, our universities are run—neither administered nor led. In my judgement, it is a poor state-of-affairs that our educational administration and leadership should run like this. Until we have rational concepts of what a university is, and until we understand this, we have to expect not merely the peculiar attitudes of the general public but dissatisfaction of the students, faculties and administrators.

In my judgement, a university is an intellectual community of people who at several stages of development of their capabilities are trying to understand and solve major issues that confront our nation and humanity.

Present Status of Indian Education

The quality of education left India and Indian shores unluckily along with the Britishers, and now what remains today is its skeleton only. This is the present status of our education. It does not have any relevance to the present day needs of India and her people at large. No new educational policy can be meaningful unless it sets out in improving the quality of teaching at all levels of education, and making better use of prevailing Indian conditions instead of merely copying what is happening elsewhere. Degrees and diploams mean nothing more than mere fancy certificates. On the above background, we need radical transformation in the

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**Prof. Salunkhe is the Vice-Chancellor of the Mahatma Phule Agricultural University, Rahuri, Maharashtra.*

Indian educational system. We need clear and rational national policies on education.

I will now briefly give you my impressions/views on the reforms in India's educational system:

1. The Kothari report and the national guidelines have been on paper for some years without action. Similarly the report of the Randhawa Committee appointed by Government of India, to review the working of the Agricultural Universities in different States in 1978 has also been kept in cold storage. In the above report changes in the University act and functioning have been suggested, which need to be implemented without further delay. We must set down priorities and they must be implemented in a given time. There must be a focus for action.

If we are attempting to have an intellectual community, we must get rid of everything that is not intellectual.

2. Develop excellence in teaching and reward it.

3. Since the Independence of our nation, the gap between plan and action has widened because universities' autonomy is jeopardized by the people who have personal and vested interests.

4. We should develop relevant research programmes in food production, agro-industries and home science on a very high level, which needs further development. The Community Development, Extension, outreach programs and agro-industry programs must be strengthened.

5. Democracy in education is an illusion in India, because its autonomy is not in the hands of Vice-Chancellor.

6. Universities need to be concerned and must act to solve societal problems, nutrition, birth control, and socio-economic aspects to raise and improve the standards of education and life of the nation and her people.

7 Unfortunately, education has received low priority in India in the last 30 years, except for plenty of paper work in institutions such as the University Grants Commission (UGC). The UGC must be reorganized on a better foundation, instead of handling-out money without proper analysis of the university and her program and not by looking merely at statistics and thick reports.

8. Lack of dynamism in higher education. We try to stick to the old, obsolete, and outmoded standards which are dominated by the bureaucracy. We, therefore, need visionary an progressive outlooks, decentralization in administration, and flexibility in approach and above all, action.

9. Planning and implementation of relevant programs in teaching, training, research, extension, service and out-reach programmes must be reoriented with number one national and state priority. They must be goal oriented so that universities will be modern and utilitarian to uplift our nation. It is a high time to establish planning and implementing machinery.

10. Now let me explore the problems of the university departments. We need to remove the barbed wires and compartmentalization of the departments. Inter-departmental and interdisciplinary approach is the present mode. No one department division, any one scientist or a teacher alone can solve today's complex problems both of teaching and research. Present-day teaching and research must be team-oriented.

I personally think one aspect that distinguishes one university from another is relative vitality of one as compared with another, and thus vitality comes from the highly capable, dedicated, and visionary Vice-Chancellor who can translate ideas and ideals into action consequently improve upon not only the univeristy but also society and the community at large. Leadership is another area which is lacking in our education system today. The Vice-Chancellor should be selected on merit and should have enough courage to handle problems and pressures of the university.

11. Educational policy should consist of short and long-range plans and problems with considerable thought, vision, and ideas.

12. Please be assured that a good and dedicated Vice-Chancellor is not a luxury, but is a necessity if the university is to flourish and the society and community are to benefit from it by its knowledge-generating commitments.

In short, I personally believe in the nation's obligation to the education of her people is of paramount and moral importance. In my judgement, education is an art and science of utilization of acquired knowledge, and the function of the university is to impart that knowledge for the betterment of not only a receiver (i.e. student), but also of the others in the society. The objectives of education should commensurate with the objectives of life. Education should create activity in students and professors together in creating and acquiring knowledge.

Education should be the backbone of morality, tolerance and non-violence. A good education and sound upbringing of our children are of first, second, and last paramount importance for our nation. It is of the most instrumental and conducive life and happiness of the nation and her citizens. Let our educators toil to find out better ways and draw new blue prints for our young generation in whose hands India's destiny lies.

Universities are the temples of learning where there should be no barrier in acquiring knowledge by any person irrespective of his caste, creed, sex, district or state. All should be equal before the seats of learning. If this is achieved, then only universities will be worthy to be named as 'Universities'. ☐

Programmes for Colleges

Jan Mohammad*

In the fast changing world of today when scientific knowledge and technological know-how have had a distinct effect on the life of a community and an individual, it is imperative for the universities and colleges to educate the people in its various aspects and help to make their lives easier and worthwhile. Even an educated person can become out of date if he does not keep up with the advances made in his professional field and maintain his zest for learning and knowing.

In recent years, many universities in the country have *established centres of Continuing Education* on their campuses. These centres have done some useful work no doubt but as yet the academic community in the country generally and public in general, have not realized the full impact the concept of Continuing Education can have on a society, a state and indeed, on every individual, male or female.

The Vice-Chancellors, Directors of Institutions of higher learning and educational administrators could very well provide the necessary leadership in implementing various relevant and need-based programmes of a region under this scheme, but unfortunately they get bogged up and involved usually in unacademic and sometimes extremely trivial issues and in the process the values and ideals for which an *institution* of higher learning stands and exists are completely lost sight of and forgotten, one can only offer one's sympathies to authorities concerned.

Paper presented at the Seminar at Panjab University, Chandigarh under the auspices of Indian University Association for Continuing Education on March 23, 1982.

Even so the universities with the facilities at their disposal and as repositories of old and new knowledge should provide opportunities to an individual to learn whatever he is interested in, provided only it is academically viable and/or satisfied his social, economic or cultural needs and aspirations. We have universities in every state and they can provide *the necessary motivation and initiative to the academic* community within and outside their campuses, the latter can in turn approach and help in the growth of the various sections of the society. The academics of an institution are the torch-bearers of the society and are in the unique position of having a fund of goodwill and sympathy for their less fortunate fellow-citizens because of their cultured minds and deeper understanding of human affairs.

For the successful implementation of the scheme of Continuing Education in colleges, coordination at the highest academic and administrative level, with a small team of committed intellectual and thinkers within and outside each university is needed in order to approach various sections of society and help in the growth of every aspiring individual. Sadly enough, our colleges have not generally come to realize the validity and the importance of the scheme of Continuing Education. On the average, there are about 10 colleges in a district in the country and these colleges could usher in an era of learning for the community around them, in particular in rural areas close to their campuses. At this stage of our developmental process, it is not enough for a teacher to perform only the routine function of teaching to a class as is often observed but to pay his debt to the society for the education he has received in terms of helping it to grow by making the optimum use of his capacities and talent. It would be necessary to create leadership at the college level by educating the principals, both professional and non-professional about their role in providing leadership to their faculty and help the latter in inculcating a spirit of service and dedication for the community around them. *In this regard the Indian Universities* Association for Continuing Education could play meaningful part by arranging orientation programmes for each category of principals with the help of resource persons in each field of our social and economic set-up e.g. the faculty in Engg. Colleges could arrange short term courses on topics which can be of immediate help to engineers in improving their efficiency, reducing costs and updating their professional knowledge. There is so much to be learnt in terms of the new knowledge and skills that the working engineer will not only get a job satisfaction but he will be able to contribute positively in the developmental process, for example, by better methods of laying cement concrete and improving its strength, providing low cost housing, use of computers in special projects etc. Similarly *the medical faculty could identify the incidence* of various diseases in an area e.g. diabetes, hypertension, bronchitis etc and provide latest knowledge in these fields not only to working doctors but make available to the community the preventive measures to be taken in each case.

The Polytechnics could arrange to give new techniques to masons, carpenters, automobile technicians etc. so that they could reduce the drudgery and improve their efficiency. The arts colleges could arrange to meet the community around them, educate and enlighten them and help to remove the social evils and disabilities facing the people. History could be reoriented so that the objectives of social and national integration could be achieved. Family planning and the benefits accruing from it to a

(Contd. on page 478)

**Dean of Colleges, University of Kashmir.*

Education University—A Necessity

Madhusudan C. Butala*

"The destiny of India is being shaped in her class rooms...." Thus begins the Kothari Commission report on educational reforms. The sentence has eversince been used and reused as a slogan of inspiration. Much has been said, written, discussed and debated on it. In this article I have made an attempt to project my views as to how the standard of education, can be revamped, reactivated and put back on rails.

Neglect of education despite its continuous development

Eversince the dawn of independence in 1947, there has been a steady development of education; thanks to our five year plans and also the constant efforts of a host of social service agencies in the country. All around us today, we witness a thirst for knowledge. The 1978-79 report on education placed the number of students in schools and colleges as 100 million. Today the number might have gallopped to not less than 110 million...An amount of Rs. 1,129 crores was earmarked for education (General) in the Vth Plan.

In the field of higher education today we have more than 120 Universities in our country. Tens of thousands of graduates emerge from these universities every year. There are about 4,500 colleges in the country, most of them imparting instruction to students in subjects related to Arts, Science or Commerce.

No proper planning with regard to demand and supply in relation to achieving social needs has uptil now been made in our educational system. The result we have is that proliferation and development of education notwithstanding, it has miserably failed to help achieve the social objectives attached to and expected of it. From the angle of utility, the present system of education could not—nay, cannot kindle hopes in the educated; the number of educated unemployed swelling year after year is a stark reality that stares in our face. Contrastingly, however, there is an acute dearth of qualified personnel who can contribute to bring about agricultural and industrial revolution in our country. It goes without saying then that the present system of education and the methods adopted to dispense it to our young men and women are not in harmony with our specific and vital requirements to usher in a better tomorrow. We have erred somewhere. And, therefore, sounding a note of prediction that by 1986 the student population in India will have reached 200 million, The 'Hindustan Times', commented that if the monotonous stereotype methods as adopted at present to impart instruction to future generations too is continued sine die, then our country's onward march will certainly be decelerated and she will have no option but to rest content as a decrepit and dilapidated nation crawling on the verge of starvation. We would, however, survive for the sake of survival.

But India can place herself on the map of industrial, democratic and developing nations if we shed the ageold system of education and show a total willingness to assimilate new ideas. This can be made possible in two ways :

- (i) by a total change in the content of education, imparted to teachers, and
- (ii) by establishing vocational universities thus mitigating the burden of academic universities.

Unfortunately, teacher training (education) is the most neglected aspect of education in our country to-day. The lion's share of money earmarked for education is swallowed mainly by bulging pay packets, expenses on buildings and other administrative parapharnalia. In comparison to these expenses, a very negligible amount is spent on syllabi reform, educational tools and facilities, evaluation of text books, intensive training and refresher courses to teachers in modern methodology, etc.

If education is the foundation for all round development of future generation and teachers the architects thereof, then the foundation needs to be made much more sturdy by investing more money for teacher training programmes. We can legitimately hope to reap rich dividends out of these investments in the form of higher standards, attained as a result of constant efforts of better qualified and well-equipped teachers who have undergone proper, effective and intensive training. In proportion to expenses incurred in other fields, development of a sound, elaborate and multifaceted programme of effective teacher training would require much less investment rather.

Dr. Dhanwant Desai, an educationist has opined that if education is to be made an effective means to bring about development and progress in our country, then there is no denying the fact that we can't hope to get much from the obsolete, outdated methods of teaching adopted in our schools and colleges today. The multifaceted skills, talents, courage and capacity which lie hidden in the pupils cannot be roused and blossomed simply by the teacher lecturing to them or asking them questions within the fourwalls of the class rooms. The object of shaping and moulding the youth and thereby moulding "the destiny of the nation" (according to Dr. Kothari) can be realised only if the teacher adopts more constructive and motivative method in teaching. A thorough, foolproof knowledge of these methods and effective implementation of them in the actual class room situation will all depend on the kind and quality of training the teacher has received.

**Education College, Godhra.*

To reap a bumper harvest from the field of education, it has become highly imperative today than ever before that we should abandon traditionalities and reorient the whole system by improved methods of training to teachers and by switching over to vocational pursuits in education. And therefore, looking to the overall mood of Kothari Commission report, one can stress with a considerable degree of assertion the need to set up at least one education university in every state as a viable remedial measure to combat the present ills and issues related to education. These Universities would, while preserving everything valuable and useful in the Indian System, prepare well trained and need oriented graduates to take the wheels of our nation's progress in their hands.

Agricultural, Ayurvedic, Engineering Universities as well as other Institutes of Technology in our country have contributed their due share in the march of the nation's progress. Thus, while traditional academic Universities have become less important and least relevant to the fast changing multifarious needs of the country, vocational universities have, beyond doubt, gained strong ground and established an invincible hold proving thereby that they are an indispensible necessity for the good of the country.

Objects of education university

On a broader perspective, the objects of an education university can be none other than those enunciated for other universities. But considering the vocational and need oriented aspects, its objects can be broadly outlined as below :

1. Keeping a close watch on educational research going on elsewhere (in the world), applying them to our educational system within the Indian context and including them in the syllabus from time to time.
2. Preparing intelligent, well trained and well-talented leadership force of teachers for all stages of education viz. pre-primary, primary, secondary, higher secondary and university education, as well as adult education, social education etc.
3. Forging inter-relation among different stages of education and their co-ordination relevant to national objectives.
4. Preparing well trained and highly competent teachers for specially talented students.
5. Inculcating a sense of honour, self respect and prestige in every teacher regarding his role in shaping the nation.
6. To keep the teacher abreast of the modern trends in subjects related to him and also of recent national trends.
7. Syllabi formation with the object of shaping vocationally competent teachers—especially from the point of talent and knowledge.
8. Imparting training in democratic management of different educational institutions with particular emphasis on academic interests.
9. Playing prominent role in the formulation of State Education Policy.
10. Keeping constant touch with other Universities and Research Institutes, and making constructive efforts to develop education to national standards.
11. Facilitating specialised research in the field of education, honouring skilled and talented teachers who present research papers of originality and high quality, rewarding and encouraging them.
12. Comparative study of thoughts enunciated by thinkers and educationists of national and international repute.
13. To make the teachers conscious of their professional ethics and keep them alert of it.
14. Basic research keeping in view the national planning and purposes of education.

Area of activity of education university

Education is one of the subjects included in the concurrent list of our constitution. But the implementation of different schemes, experiments in education are undertaken by the States concerned. And so, the area of activities of an education university would, naturally, be confined to the linguistic boundaries of the State where it is located.

The field of activities of an education university would be limited in the sense that it would concentrate its attention to the issues related to education and allied subjects. The following institutions can, therefore, be affiliated to it :

1. Institutions imparting instruction/training (preparing) teachers for pre-primary schools/Balmandirs.
2. All colleges in the State training primary school teachers.
3. Teachers (Secondary/Higher Secondary) Training Colleges affiliated to different Universities in the State.
4. Institutions training teachers for Basic Education/Tribal Education/Research Centres/Adult Education Centres/Centres of Social Education etc.
5. Other institutions affiliated to State Board of Education, PG Schools affiliated to different Universities in the State, Educational Research Institutes like CASE etc.

Faculties of education university

A separate faculty consisting of teaching/training institutions related to various stages of education alone can assure unconditional and independent research and teaching. Hence the following faculties may be considered for an education university.

1. Faculty of Pre-primary Teachers' Education.
2. Faculty of Primary Teachers' Education.
3. Faculty of Secondary Teachers' Education.
4. Faculty of Tribal Teachers' Education and other Social Research Centres.

Postgraduate teaching : School of education

Better coordination of different Post graduate teaching centres will become possible with the formation of Education University. Further, being job oriented, the school of education will have to bear special responsibility and thus, the university's accountability towards the society will considerably increase. Kothari Commission itself had called for effective unification of different disciplines for purposes of PG teaching. The Commission also stressed the need for effective interplay of teaching and research simultaneously with the detailed study of different research methods to be adopted in syllabi formation. Besides, a good library, well equipped laboratory and adequate facilities for conducting experiments are underlined as matters of basic and undisputed importance. So, then, the following can be mentioned as special responsibilities on the head of the PG Department.

1. Preparing suitable teachers for different faculties of Education University. Special care and attention is needed in this as these teachers, in turn, will be later responsible for preparing the teaching force for other educational institutions. Therefore, teachers emerging from Education Universities should be best trained, best equipped in the matter of knowledge and skill, and their mentality research oriented and responsible to new vistas and visions.
2. Planning and co-ordinating educational research activities and imparting proper guidance to research scholars in other areas fields.
3. Study of well established research methods elsewhere in the world and examining the feasibility of their implementation relevant to local context and conditions.
4. Planning in-service training programmes wherein teachers can be kept informed of different trends in syllabi formation and teaching methods etc., based on day to day research in these fields.
5. Introducing subjects such as Educational Administration, Educational Finance, Educational Engineering, Educational Planning Research and Development, Educational Supervision, guidance and inspection for the benefit of persons, holding different positions in Government offices, schools and other institutions.
6. Preparing experts in teachnig in consultation with the University Grants Commission.

Educational polytechnic

For the efficient functioning of educational institutions, the non-teaching staff also have to play a no less significant role alongwith the teaching staff. It, therefore, demands that the non-teaching staff there should also have their ideas and attitudes conducive to and in harmony with educational philosophies and objectives. It would be in the fitness of things if some useful certificate/Diploma Courses are conducted for the benefit of the non-teaching staff, thereby ensuring easy availability of trained personnel to take up administrative responsibilities. With this end in view, educational polytechnics affiliated to education university can be started. These polytechnics can impart instruction and training with the ultimate end of preparing well qualified and well trained Librarians, Laboratory Assistants, Educational Teaching aid Technicians, Extension Service Co-ordinators, Clerk-cum-Accountants, Art Teachers, P.T. Instructors and a host of other personnel. Moreover, experience has been that many educational institutions have suffered financially as well as otherwise due to a lack of understanding, on the part of the non-teaching staff of various rules and regulations formulated and modified by the Government from time to time with respect to the Grant-in-Aid policy. Introduction of intensive in-service training to the non-teaching personnel of educational institutions will go in a long way to reduce the degree of ignorance and efficiency among them to the level of a tolerable degree of efficiency and competence.

Renaissance of education—the high returns

We can salvage our nation from disappointment and uplift education from the sorry state of all-round insult and insipidity provided we sincerely implement our concepts and ideas in relation to the formation and functioning of education university. We can bring about a renaissance in the field of education. A considerable degree of improvement can be expected of a teacher of any stage of education, if the concerned teacher is well qualified and well trained in his subject of specialisation. The expectations which the society entertains of education can be realised only if there is interaction and coordinated efforts at different stages of education. Independent thinking power of students can be bloomed and developed with the development of knowledge, talent and thrust in them. These students can achieve new heights in any field of activity they choose. It is therefore beyond doubt that with overall development in every conceivable arena of educational activity, money invested in this field would yield high returns. □

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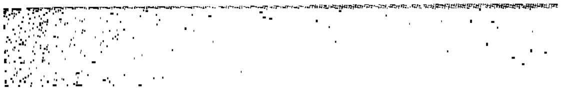
Structure & content of higher education

Excerpts from the convocation address delivered by Shri M. Hidayatullah, Vice-President of India, at the University of Jammu.

“..I am aware that standards differ from one University to another. But what I say takes in most of our Universities because in those matters they are very much alike. The common spectacle of a large number of students getting their degrees may be exhilarating no doubt but is also a cause for worry. The education which the students receive does not guarantee them any employment and is not of the kind which can be a secure prop in their struggle for survival. It only adds to the struggle. When I saw recently about 15,000 students getting their degrees at a single convocation, believe me, my heart sank within me, when I pondered over their prospects in life. I thought also of the years they spent, the money their parents and guardians provided and the expenses which the Nation bore. Scholastically speaking, within the range of education which the University imparts the result seemed as satisfactory as the output of a large scale production of prototypes in a factory. The only difference is that each product of a factory is expected to perform the same task but not the 15,000 degree-holders. These products of our Universities will have to learn many new things and unlearn many more before they will be fit for the varied jobs they will undertake. The basic education will serve them well but the additional higher education may be found redundant and even obstructive. It is for this reason that all right-minded persons are agreed today that our educational system needs to be overhauled. All have diagnosed these defects but the cures suggested are not the same and sometimes may even aggravate the malady.



“It is my firm conviction the primary aim of education should be to fit a person to be on his own and not a burden on his family and ultimately the State. I start with this premise and in plain terms it means, that education apart from creating a liberal attitude of mind and imparting some essential knowledge of things and matters must be so designed that the recipient thereof can meet all the requirements of his own life—which opens before him when he leaves the portals of his educational institution. This is sufficient to show and establish that a single general pattern will never do beyond a certain stage. Upto that stage education may be uniformly for all but beyond that stage it must be completely diversified. In this scheme diversification must begin as early in the lives of the student communities as possible so that a choice is available to him early enough. It must not be forgotten that most persons seek education to be able to earn their living. They are not concerned with nation building in theory and much less in practice and are not expected to take a share. To begin with it will be enough service to the Nation from them if they are themselves usefully and gainfully occupied. It does not matter what that occupation should be so long as they cease to be a burden on family and society. Therefore, there is hardly any need to insist at that stage in their involvement in extra curricular activities which must take them away from the centre of the academic circle. Often by doing this they are launched into the agitational atmosphere which is created by the unemployed. The young mind is emotional and can go to any lengths in the wrong direction.

“Recently I heard two views expressed. The first is that students should do two years of social service. No one has explained whether this social service will be a part of curriculum with compulsory attendance and whether the work done will be evaluated in any way. I assume that social service will be curricular and not haphazard. It will also be such as will further the knowledge and experience gained and not lead to the unlearning of much that was learnt. In so far as I can see there are only two categories of students who can do social service in the line of their education. One is medicine and the other is education itself.

“An engineer, a chemist, a physicist, a psychologist and so on and so forth can hardly afford to lose themselves in rural areas for two years earning nothing and unlearning everything. If I may say so, such ideas occur to those who make a fetish of social service before self. I subscribe to the sentiment but I also believe that like charity, such service may begin at home first. When a person is going to be a burden on his family and the country the only real service for him is to cease to be such a burden.

“Another learned speaker said that the real fault of our educational system is that it is urbanised. If by this is meant that educational institutions of the higher kind are only to be found in urban areas, it is a true statement of fact. But it does not solve the problem and will make it worse if such education is imparted in rural areas also. There is already an abundance of universities and colleges and more will add to the number of educated unemployed in our country. We cannot afford to do this any more. If by the expression is meant that the content of university education should be changed to fit it in with rural conditions, the scheme will make no sense. Education today, call it urbanised or what you like, is already poor. I have analysed it before in other convocation addresses. To make it ruralist will make it rustic. In this jet age we are making good with bullock carts and the urbanised version is the bullock cart with rubber tyres. It is a bullock cart all the same. What I complain of is that our university education is like a bullock cart with rubber tyres fit for city use. To make it shed its urban character will make it resemble the old bullock cart.

"The problem, I submit, must be tackled differently. We must divide the education time into compartments. Education up to the end of the first ten years must have the same elements of liberal education with a few differences. At the stage of the next two years in the 10+2 scheme, the scheme of education should be preparative for different kinds of jobs and employments. This means that the diversification should begin at the stage of two and be consolidated fully in the stage after 10+2.

"This does not mean that the Bachelor of Arts and Science degrees will be abolished. They will only be useful for persons who wish to go on to the Master's degrees and doctorates. For the rest 10+2 will do except for specialised courses in some technical institutions. See the advantages. People will select their future at the 10+2 stage. The ten years should be so strong that the boy will know what to do with himself. There ought to be some instruction at that stage about the job openings available after vocational guidance in the 10+2+3 state. Then the students will be able to make a sensible choice and not just drift into the graduation course without any idea of 'What next.' As I said before all our jobs (white collar particularly) should demand only 10+2 excellence and no more. That way the rush to the universities will be reduced. But we must have technical and vocational institutions in large numbers where education can be extremely diversified. I have also suggested that job facilities should be investigated and employment guidance available in every college, university and technical or vocational institution. Thus education will havel an immediate purpose. It will produce specialists in different fields and not similar prototypes. Their will be less discontent and agitation. In this work each State and each university need not wait for others to make changes." □

Cultural Heritage of North-Eastern India and NEHU

Excerpts from the convocation address delivered by Prof Surajit Sinha, Vice-Chancellor, Visva Bharati, at the North Eastern Hill University.

"It is known that many of the ethnic groups of this region used to live, or continue to live, primarily on slash and burn cultivation, sometimes combining this with terraced cultivation and plough-based agriculture in the narrow valleys. In the universal context of man's history such a means of production would be considered analogous to prehistoric neolithic culture. But this analogy and a stereotype of isolation of the hill people from those of the plains should not be overdrawn. The picture of isolation between the hills and the plains is to a great extent the product of the British Colonial Rule which was mainly concerned with cordoning off the plains and perpetuating ethnic-based isolation of this region in terms of "Excluded Areas" and areas beyond the "Inner Line". If we move back to the pre-colonial period we find many instances of principality and state formations from a tribal base such as, among the Ahom, Metei, Kachari, Khasi and the Jayanti. Even groups like the Garo and the Mizo who had not evolved kingdoms of their own, were responding to the pulsations of the various medieval principalities that surrounded them. Complementary socio-economic, political and cultural relationships developed between the tribals of the hills and the tribal and non-tribal peasants of the plains, in the context of formation of evolved polities in the medieval period. As a matter of fact, it is impossible to gain a proper under-standing of the social and cultural formations of the tribes on the hills except in terms of interactions and complementary relations with the people in the plains in the context of larger and more camplex political formations.

"Just as we will have to review the concept of "isolation of tribes' in the broader historic context, the stereotype about their "backwardness' in technology and "quality of life" has to be reexamined going out of the ethnocentric exogenous view of good life. 'Backwardness' is often a value loaded perspective for looking into the social reality.

"Probing into the essence of a wide range of tribal traditions in the region it is observed that many of the groups share certain qualities which appear to be universally desirable; qualities which are often inhibited among the upper strata of the Indian population in urban and rural areas in the plains. Among most of these tribal groups there is an egalitarian ethos, an emphasis on corporate solidarity at the level of clan and village, a dignity of labour, freedom in movement and in choice of mates for the women, a joy-oriented view of life and a world-view where man lives in culturally defined harmony with the community of men, nature and the supernatural world. We thus get a picture of an ideally unalienated social and cultural existence. The prevailing stereotype of the tribals being involved in wanton destruction of forests and animals by slash and burn cultivation is often overdrawn. Deeper probing indicates a natural orientation among the tribes to preserve ecosystemic balance for the overall welfare of the community. Sometimes pressures of population and the impact of the modern market forces make them transgress the traditional norms of preservation of the balance of man and nature by observing the optimum period for recycling of the growth of the forest.

"One may observe that the recorded history of man appears to imply that, as elsewhere, in North-east Indian hill areas too, the indigens will have to pay the usual price of modernization by stepping out of their village and ethnic group bound small-scale face to face social relations and integrated world view, towards far flung complex networks of social relationship. The latter situation, it is presumed, would lead the tribals towards individualization, social class formation and alienation of the individual from fellow human beings, nature and a traditionally shared cosmology. As a matter of fact we are observing some indications of socio-economic class formations, development of norms of private ownership of land in response to increasingly massive exposure to market economy and cash nexus. The impact of these modern economic forces on the social life of the people in different regions of North-eastern hill areas have been uneven and have not yet been adequately recorded. We are left with the impression that the modern tribal leaders and entrepreneurs try to strike a balance between their emerging expanded linkages and traditional roots in clan, kinship, village and ethnic group.

"At this point it may be observed that the world has become much more aware of the diverse choices in the course of man's cultural evolution than in the early days of Industrial Revolution in the West. Many thinkers are now prepared to accept a position of multi-linear routes to development and evolution of cultures, within a broad universal framework, among different groups of people in different regions of the world. One of the major concerns of modern man is not merely to achieve scientific and technological development, development of the forces of production, but to find out ways as to how to contain them within man's social and cultural control.

"North-east India offers a very special opportunity to work out the possibilities of a course of "development through conservation" from the home-base of the various ethnic cultures. This approach demands a thorough knowledge of the human and natural resources of the region and of the patterns of interaction and adjustment between man and nature. It is particularly important to establish communication between people's traditional knowledge and modes of utilization of natural resources, what we now label as "ethno-science", and the exogenous systematic observations made by modern scientists belonging to various disciplines. Quite often wrong and hasty steps have been taken by enthusiasts of the diffusion of the latest technological innovations ignoring the empirical knowledge of the indigens who have learnt the art and craft of living in a particular environment through many generations of trial and error.

"I, therefore, welcome that from the very inception North-Eastern Hill University has kept in view the idea of inter-communication among the Physical Sciences, Life Sciences, Environmental Sciences and Social Sciences, and, perhaps, also the Centre for Creative Arts. Effective communication of researched information among the various faculties will gradually widen and deepen our knowledge of the realities of the human and natural resources of North-eastern hill areas.

"I have so far talked mainly about the tribal heritage. But North-eastern hill areas have also the valuable heritage of a cosmopolitan city like Shillong where many tribal and non-tribal groups, people belonging to many religions and languages, have learnt to live peacefully for over a century. In a seminar on the *Cultural Profile of Shillong* sponsored by the Anthropological Survey of India in 1973 it was observed that in spite of the overall cosmopolitan nature of the city various ethnic groups have a tendency to lead a compartmentalized social life outside the formal modern institutions. Location of a Central University like NEHU at Shillong is expected to create universalistic social linkages across the traditional ethnic and community lines in this important city.

"The three States and Union Territory, Meghalaya, Nagaland and Mizoram whose higher education is affiliated to NEHU have to depend primarily on the Central Government for their maintenance and development. In view of the very difficult terrain and the historical background of relative isolation this investment in development is inevitable at the initial stage of planned growth. But from our experience in many parts of the world we have also learnt that a perpetually subsidised culture unknowingly drifts towards loss of inner vitality. It is indeed very heartening that in the objectives of North-Eastern Hill University, it is clearly stated that one of the major tasks of the University would be to generate knowledge which would be relevant to increase the productive power of the people in the context of the prevailing social and ecological situation. Science and technology should, therefore, have a very special place in the educational programme of this University.

"During my previous visits to this region I was informed that there were some difficulties in initiating the local tribal students of the region to the study of mathematics and the various science subjects. It should be emphasized that the inhabitants of this region have a traditional heritage of empirical technological orientation in carrying out their productive activities in the hilly and forested environment. They are all socialised in inductive reasoning in the course of solving technoloical problems connected with their livelihood activities of agriculture, animal husbandry, hunting and gathering of forest products and various crafts. What they traditionally lacked was an access to the knowledge of connecting their unformalized inductive thinking with the deductive power of mathematical reasoning. This problem should be thoroughly studied by the School of Education at various levels of the school system and also through critical review of the adult education programme. It has been observed that the fact that the tribal children are often moving into the class room with a wealth of skill in empirical reasoning is often lost sight of while initiating them to formal courses of science and mathematics. Science and mathematics are often catered to them through examples, and in a cultural frame, which do not have any relevance to their known environment.

"We may briefly review, in this connection, the problems which were faced by the people of urban Indian in the plains in the course of effectively absorbing science under the Colonial Rule. Despite very long period of contact with the creative and expansive phase of European science, its introduction to India was hardly noticeable until towards the closing years of the nineteenth century, and the beginning of the twentieth century. It showed little sign of striking roots in the Indian soil. The situation presents a sharp contrast to what happened in Japan after the Meiji Restoration in 1867 when the Government announced the policy that "knowledge shall be sought throughout the world, in order to establish firmly the foundation of the Empire". While it took almost a hundred years of exposure under the colonial situation to produce in India a P.N. Bose, a J.C. Bose, or a P.C. Roy to do worthwhile research work in geology, physics and plant physiology and chemistry, it did not take Japan more than twenty years to produce, under the influence of British and American teachers, a band of young Japanese seismologists who were soon to command international recognition in the new science of geophysics.

"The success of the Japanese may be accounted primarily to the national political and social will to apply the newly acquired exogenous knowledge of modern science in one important area of vital national relevance, namely, understanding the nature of earthquake which was an endemic menace in their land.

"We can learn something from the Japanese exeperience in the national context and also in the sphere of a university like NEHU. It is not possible for a university to achieve excellence simultaneously in all fields of learning. But the surest way to attain success and generate an atmosphere of endeavour and confidence would be to choose a few areas for comprehensive and intensive study. I am very pleased that the School of Life Science has already done important research on the ecosystem of shifting cultivation and other forms of cultivation in the hill-forest environment. We expect that the Schools of Physical Sciences, Environmental Sciences and Social Sciences would lend their support to this programme so that within the next decade ininternationally recognized and socially relevant research would be produced in this University in an important area of contemporary relevance. Once the University Community and the society around it gains confidence in one area of study and research, the mood of confidence is likely to spread in many other spheres including the humanities and the fine arts.

"One of the most fascinating human phenomena in the region is the emergence of a group of intelligentsia who are actively involved in defining their identities as individuals, as members of an ethnic group or of a cluster of related ethnic groups, as persons belonging to the tribal category and as participants in giving shape to the new nation-state of India and to the emerging modern world. They are posing and creatively trying to answer questions like :

> Who are we as people-Garo, Mizo, Khasi, Jayanti, the various Naga groups and so on? In what way are we "tribes" in the modern world? How have the tribals and non-tribals combined together in creating a cosmopolitan culture in Shillong? How are the concepts modernity, development and progress, to be defined from the home base of the traditions of the Khasi, Garo, Mizo and so on?

"It has been observed that the members of an ethnic group regardless of affiliation to various religious denominations—Christian, Hindu, Buddhist—or being outside the wider religious system, tend to preserve the identity of beloning to a specific tribal group with a distinct cultural heritage. They are not inclined to move into the modern age as "culturally disinherited" people. In some cases several tribal groups such as the Ao, Angami, Sema, Rengma, Lotha, Konyak and so on, seek to establish a common supra-ethnic Naga identity. The above mentioned area of search for identity and identity transformation is a very important field of enquiry in which anthropologists, sociologists, political scientists and historians and also the members of the Centre for Creative Arts may combine their efforts. A serious endeavour in this direction is likely to generate new concepts and new methodological tools in the social sciences.

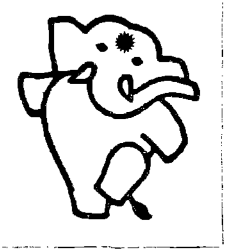
I would take the liberty to point out that our perspective for looking at the human situation in the hill areas of North-east India has often been distorted by an approach of bringing the people of these outlying areas within the "mainstream" of Indian nation and civilization. It should be clearly realized that none of the ethnic groups in the hill regions of North-east India think of themselves as belonging to a "side-stream.". Ours is a nation which has been going through a massive process of social churning while giving the emerging national culture a crystallized shape. At this phase of India's social upsurge the only valid perspective would be to regard the emerging national culture of India as a "confluence of many concurrent streams." The vibrant cultural streams of North-east India are destined to play a decisive role in revitalizing a somewhat exhausted and ancient civilization of the Indian sub-continent which had to bear the load of Varna hierarchy and social discrimination over the millenia.

"I may have given you the impression that as an anthropologist I have over-emphasized an inward looking endogenous view of the University. Let me make it absolutely clear that in the final analysis a university can only have one valid definition namely, it is a forum for universal modes of scholarly discourse. Just as we cannot convert Tagore's Visva-Bharati into an institution exclusively concerned with Birbhum district of West Bengal, we cannot and will not circumscribe NEHU mainly in local terms. Its main aim is to participate vigorously and creatively in the global feast of knowledge without loosing sight of social relevance..." ☐

IX ASIAD FACILITIES

"The Yamuna Velodrome makes cycling history" states a bulletin of the IX Asian Games Special Organising Committee.

Set amidst the soothingly landscaped undulating surroundings on the banks of the Yamuna, the Cycle Velodrome, now ready for the IX Asian Games, has become a showpiece for International Cycling Competitions. It is designed to international specifications, and though it is the third of its kind in Asia and Australasia it is still the best in this vast region. In constructing the Yamuna Velodrome care has been taken to do away with the drawbacks that existed in the two similar venues in Brisbane and Bangkok. Its basic virtue is that the wind conditions at all points are uniform thus helping competing cyclists to maintain an even speed. It has an optimal track grip and smoothness. Its cement concrete surface assures the Yamuna Velodrome a long and almost maintenance-free life.



The Velodrome is one-third of a kilometre in circumference and varies in tilt from a minimum of 7° to a maximum of 38°. This elevation can help competitors to easily reach speeds of 70 kilometres and more. The outer perimeter of the track is provided with a kerb and a railing for the added safety of competitors. Also provided is a three-metre walkway to afford easy access to spectators. A three-metre wide tunnel, which goes under the stadium building, will serve to give unhindered access to competitors, officials and organisers to the main track. In building the track to international specifications, electronic devices like friction monitors were used to control surface evenness.

The Velodrome has a central field area of 400 square metres which is paved to be used as a resting ground for competitors between events. The central field itself is beautifully turfed and can be used for other sports like Tennis and so on. The diametre of the Velodrome is 150 metres and the stadium, which is covered for spectator comfort, can seat up to 2,500 people.

Apart from these technical details, the Yamuna Velodrome is equipped to provide dormitory accommodation for 40 athletes. It has a Dining Room and a Restaurant. Moreover, the rooms under the stadium building are eqipuped with conference, press and medical facilities. There is a lounge for VIPs, a Judges' Room, space for ticket counters, changing rooms, and a cycle workshop.

The Velodrome has been conceived, in terms of facilities, in a futuristic manner. It has a public address system for the benefit of spectators and competitors, along with intercom stations integrated with those of the Indraprastha Indoor Stadium, which is a stone's throw away to the south of the Velodrome. More importantly, the Velodrome is equipped with an electronic start-synchronisation system, photofinish apparatus and video equipment for accurate and speedy monitoring.

With these architectural and constructional advantages, together with these modern facilities of information, the Yamuna Velodrome can rightly boast of being the best in Asia at present and certainly one of the best in the world. ☐

National Seminar on Auditing

(From Our Correspondent)

A National Seminar on Auditing—Contemporary Issues & Development—was organised by the Faculty of Commerce, Garhwal University, Srinagar (Garhwal) on 26th May to 28th May, 1982. The seminar was held under the convenership of Dr. Prem Lal Joshi of Faculty of Commerce. Dr. D.S. Rawat, Vice-Chancellor of the University inaugurated the seminar. In his inaugural speech, he stressed on the introduction of job oriented courses like *INTERNAL AUDITING* in the Faculty.

This seminar is claimed to be the first seminar on the subject of Auditing organised by any University in India so far. The University Grants Commission provided the necessary financial assistance for the seminar.

The main topics for discussions were Internal Auditing, Management Auditing, Cost Audit, Audit Committees, Fraud and Auditors, Audit Evidence and Government Auditing. The papers presented by Dr. Pran Gopal Bhattacharya, Mr N.K. Puri and Dr. Prem Lal Joshi were specially appreciated by the delegates.

The concluding observations were :

(i) there is ample scope for the audit committees to be established in the companies;

(ii) internal audit should encompass both financial and non-financial activities;

(iii) the concept of management audit should be encouraged and implemented in India;

(iv) the fraud mechanism and its detection techniques should be introduced in Accounting/Auditing graduate courses.

More than 16 outstation delegates representing the universities and institutions like Delhi, Calcutta, Panjab, Allahabad, Kumaun, Garhwal etc. participated in the seminar, besides about 15 local delegates. Some of the distinguished delegates were Mr. A.K. Majumdar, Director of Studies, ICAI, Mr. R.L. Bhatia, ICWAI, Prof. B.K. Basu, Calcutta University, Dr. G.C. Agarwal, Allahabad University.

Professor A.S. Ratur, Visiting Professor, Garhwal University was the chief guest and Shri Ram Sarat, Registrar, Garhwal University delivered the valedictory address.

The highlights of the seminar were indepth discussions on the concepts and techniques of Auditing and the main achievement of the seminar was its deliberations on the problems of the practising auditors.

There were three fundamental recommendations for popularising and establishing the audit as an inddependent field of study.

(1) An Indian Auditing Association should be formed immediately. The Association should start a quarterly journal on Auditing in order to encourage research and proliferation of the latest knowledge.

(2) Degree courses on Internal Auditing should be introduced in the universities at the earliest. This recommendation was made in order to meet out the growing demand for the specialised Auditing personnel for the private and public sectors in India, Garhwal University should pioneer to introduce such a course.

(3) A summer institute should be organised every year on the subject of Auditing. This course should aim at framing the courses and bring the uniformity in the various universities syllabi. The learned delegates recommended unanimously that a comprehensive paper on Auditing should be made mandatory at the M.Com. level in all the universities from the next academic session.

The learned delegates also recommended that a Seminar should be organised exclusively on the topic *'COST AUDIT'*. The topic needs further discussions because India is the first country in the world which has given statutory recognition to Cost Audit. Professor B.K. Basu had agreed to organise an All-India Seminar on Cost Audit in Calcutta University next year.

Communication course for teachers through Apple

APPLE, India's first experimental communication satellite, will be used shortly to run a communication course for teachers in the Indian Institutes of Technology in the country.

The APPLE project director, Mr R.M. Vasagam, delivering a lecture at Bangalore recently on 'one year of APPLE' to mark the first anniversary of the launching of the satellite, said that about 50 to 60 teachers in the IITs would be brought under the course aimed at gaining experience in the use of satellite network for university level education.

An exceptional professor somewhere in the country would be available for consultations for students and teachers throughout the country one day, thanks to the course to be conducted through APPLE.

Tamil University discovers mile-stones in epigraphy

The Department of Epigraphy of the Tamil University has recently discovered two milestones belonging to the period of the East India Company. They record the exact distance between Kumbakonam and other places mentioned in the inscriptions from the place of find.

The spelling of the place names is significant. In one of the inscriptions, the year 1845 A.D. is engraved below along with the name of an individual. Luvisu Parker, probably a jailor.

These bilingual inscriptions in Tamil and English are important for linguistic and topographical study. The noteworthy feature is that Tamil numerals are written along with Arabic numerals.

Psychology seminar at Lucknow Varsity

A three-week summer institute on "Current trends in Psychological Statistics was recently organised by the Psychology Department of the Lucknow University. The Institute was attended by experts from several local and outstation institutions.

Speaking at the concluding session of the three-week summer institute. Mrs. Sheila Kaul, Union Minister of State for Education, said Indian psychology had received world recognition and the new research methodologies and devices in relation to the present knowledge of statistics would help in the research of behavioural sciences.

The Minister expressed the hope that psychology would get the same status, especially in research. as modern physical and biological sciences have.

Osmania instals plain paper copier

An automatic plain paper copier was installed at the University Library of the Osmania University and was recently switched on by the Vice-Chancellor, Prof. G. Ram Reddi.

The plain paper copier will equip the University Library to provide better services to the users. The copier is completely automatic and can deliver very fast copies on both sides of any plain paper from any kind of originals including sheets, books, bound volumes and even three dimensional objects. Also there is a special facility in the machine to prepare offset masters for high volume printing and making transperencies to be used in seminars as teaching aids.

The library is now geared to meet large volume varied kind of copying requirement of students. teaching staff and other users of Library with the acquisition of this machine.

World environment day

A special one-day camp organised by the NSS Unit of the University College at Palvelpula village. about 2 km from the campus of the Kakatiya University to mark the 'World Environment Day.' was inaugurated by the Vice-Chancellor.

Speaking on the occasion, the Vice-Chancellor, Prof. Jafar Nizam, advised the NSS volunteers to educate the villagers on the preliminary aspects of sanitation, maintenance of personal hygiene. use of filtered water. judicious application of pesticides and fertilisers etc.

In his presidential address Prof. Dinker Sirdeshmukh. Principal of the University College. advised intensive programmes in place of extensive ones. The volunteers should repeatedly visit the same village till it was developed, he said.

Discovery of paintings near Villupuram

A set of paintings found on the rock caves. twelve kilometres from Villupuram on the Tiruvannamalai Road is an important discovery of this decade. The pictures drawn with red ochre were peiced out and were photographed together. The writing containing five letters resembling the Harappa-Mohenjodaro scripts clarifies the continuity of that culture upto Villupuram.

Many scholars argued against the Dravidian origin of this culture by pointing out that the culture has no continuity beyond Lothal in Gujarat. The survival of the pottery and the red brick work in the South, according to the Japanese scholars who published a book on Harappa-Mohenjodaro culture, is sufficient evidence of the continuity of that culture in the South. The availability of the script is a firm evidence for the spread of this culture upto South Arcot District. Tamil Nadu.

The figures in the pictures are reminiscent of the folk pictures on mats and rugs in the Punjab. The members of the Historical Society of Pondicherry headed by P.L. Samy and served by Pulavar Kuppusamy and others are responsible for this discovery.

Instrumentation complex in LU soon

A central instrumentation complex is likely to come up in Lucknow University within two years, it is reported.

An expert team from the University Grants Commission which visited the university on May 29 last has reportedly given a green signal to the scheme.

It is learnt that the instrumentation centre will cater to the long standing need of repair of costly scientific equipment for which the university has to spend large sums of money. Furthermore, the centre is also stated to serve as a pool of equipment to be used by the eight departments of the Science Faculty.

Restructured syllabi in Bharathidasan Varsity

At the first meeting of the Standing Committee of the Academic Council and Senate of the Bharathidasan University, held recently at Tiruchirapalli, restructured syllabi for undergraduate courses were approved. Prof. P.S. Manisundaram, Vice-Chancellor, who presided, said the two women's colleges in Tiruchi would establish rapport with the Thanjavur Medical College for carrying out experiments for revamping the conventional degree courses into productive para-professional courses.

Another major proposal is to throw open the M. Phil and Ph.D courses for all who desired to equip themselves with these postgraduate degrees.

The Standing Committee also adopted the syllabi for all postgraduate and doctoral courses in arts and science, besides medicine and engineering.

The new syllabi come into effect from this academic year.

Course in music appreciation

The IKSVV, Khairagarh, will introduce this year a diploma course in music appreciation to enable foreign students learn Indian music.

The course, spread over four semesters, includes practical tests at the end of each academic session. Students will be taught the essential elements of music like swara, raga and tal apart from practical training.

They will also be introduced to Indian aesthetics, *rasa*, *bhava*, spiritual values in Indian music *and Indian Sangeet Sastra*

The course is intended to impart knowledge to help them enjoy and develop perceptive listening and thus prepare them to learn Indian music.

Deserving students would have a chance to complete the course even in two semesters (July to November and December to April).

Jammu seminar on master's degree programmes

The College Development Council of the University of Jammu organised recently a two day seminar on "Master's degree programmes: Key issues and Reforms." This was a *follow up* of the University's programme of introduction *of* semester system in 1980-81.

Besides teachers, the seminar was attended by 32 students of the postgraduate departments of the university.

The seminar provided an opportunity for the University to get a feedback from students on the relevance and standards of post-graduate education and students could besides suggest innovations and reforms in the semester system within the given framework.

Seminar on degree level question bank

A seminar on degree level question bank in Physics, Chemistry and Geography was held at the Cotton College, Gauhati, recently, under the directorship of *Principal*, Dr. G.C. Deka. The seminar was inaugurated by Dr. J.M. *Choudhury*, Vice-Chancellor of Gauhati University.

The seminar reviewed the existing question bank and made suggestions for their improvement and use.

One of the recommendations of the seminar was that the number of questions to be set, as it is, from the question banks should be lowered and the teachers who actually teach the subjects should be entrusted with question setting.

Calcutta decides to change pattern of law questions

The Calcutta University Council decided at a special meeting recently that the future law examinations of the university would be thoroughly changed.

In a resolution adopted at the meeting it was *decided that* to eliminate the scope for copying, future LL.B. examinations would be conducted on the basis of short-answer questions instead of the conventional essay-type questions.

S.V. University starts MBA course

The Sri Venkateswara University proposes to start Master of Business Administration (M.B.A.) course from the academic year 1982-83. The course will be spread over four semesters with two semesters in each year.

The department will have linkages with firms in Madras and Bangalore which are nearer to Tirupati.

Perarignar Anna University of Technology renamed

The Government of Tamil Nadu have renamed the Perarignar Anna University of Technology (PAUT) as Anna University with effect from May 1982.

Jammu confers honorary degree

The Degree of Doctor of Letters (HONORIS CAUSA) was conferred on Professor Siddeshwar Varma, Padma Bhushan, the renowned linguist on the eve of 4th Convocation of the University of Jammu held recently.

Credit of discovering 27 Dardic, Kafiri and Pahari dialects goes to Prof. Varma. He also assisted the V.V.R. Institute, Hoshiarpur (Punjab) in preparing 16 volumes of Vedic-Word-Concordance.

Personal

1. **Shri G.R. Mhaisekar has been appointed Vice-Chancellor of the Marathwada University.**
2. **Dr. O.P. Gautam, Director-General of the Indian Council of Agricultural Research, has been elected a foreign member of the V. I. Lenin All Union Academy of Agricultural Sciences of the USSR.**
3. **Prof. V. Natarajan, Project Director (Exam.), AIU, has been appointed member of the Experts' Committee by the Govt. of Andhra Pradesh to prepar a draft White Paper on Education.**

New Indo-US agricultural tie-ups

India and the United States have recently identified new areas of cooperation in agriculture, *including* farming with limited irrigation water, reclamation of ravines, embryo transplantation in livestock and exchange of extension experts.

This was the outcome of the meeting of the Indo-US sub-commission on agriculture and its four working groups held in Washington from June 3 to 9, it is reported.

Among the working groups, the group on agricultural research and education, identified for cooperation an integrated plant nutrient management including biological nitrogen fixation as one of the new areas of cooperation.

The working group on agriculture inputs and allied technology held detailed technical discussion covering efficient use of fertilisers and recommended for implementation proposals from the Indian side on training of Indian personnel in seeds, agricultural machinery and pesticidies.

The group on natural resources management reviewed the progress of earlier proposals and identified various new proposals in fields like utilisation of wood and forest residues and range and pasture management, besides reclamation of ravines.

The working group on extension and training identified priority areas in agricultural extension and training. It also reviewed the sources of funding extension, training and exchange of visits by experts.

HAU boosts up pulse research work

In pursuance of the emphasis on increasing production of pulses under Prime Minister's new 20-point programme, Haryana Agricultural University at Hissar has launched intensified research work on pulse production technology. Provision for additional funds has been made to boost up the research programmes already at hand and to initiate new research programmes.

As a first step, efforts are being made to popularise pulse crops in the non-traditional areas. Pulse scientists have developed new crop cultivars of *mungbean* and *urdbean* to fit in the multiple cropping pattern. Pigeonpea (Arhar) varieties *of extra-early maturity* duration have been developed. These varieties fit very well into arhar-wheat rotation. Two of such varieties namely H77-208 and H77-216 have shown excellent performances in the coordinated *varietal trials*. Both of these varieties mature within 125 days. When sown in the 2nd week of June, these varieties can be harvested very well in time to permit planting of timely sown wheat.

HAU scientists enumerate many benefits of cultivation of Arhar. It needs less investment as compared to other crops of Kharif season, enriches soil by fixing atmospheric nitrogen and by adding organic matter into the soil in the form of shed leaves and in addition to the grains, it also yields fuel for the farmer.

According to Dr R.S. Paroda, Prof. & Head, Department of Plant Breeding, these benefits are being demonstrated to the farmers by conducting demonstration trials at their own fields. This programme has been *undertaken* extensively so as to popularise Arhar-wheat rotation and to replace the exhaustive rice-wheat rotation.

IRRI develops three new rice varieties

By drawing on traits of previous strains from all over the world, scientists of Los Banos (Philippines) have bred new rice varieties. They hope it will make the green revolution a reality for Asia's impoverished farmers.

The International Rice Research Institute (I.R.R.I.) at Philippines has evolved three hybrids which are being hailed by some as "Third World rice" because they are suited to small farmers.

These varieties do well with little fertiliser, are resistant to many major diseases and withstand moderate droughts and floods.

The variety IR-42, introduced in the Philippines, Indonesia, Vietnam, Burma and India only last year, is now estimated to cover 10 million hectares, according to Dr Gurdev Khush, head of the I.R.R.I. Plant Breeding Department.

He said the strain, which matured in about 110 days as compared with 135 days for IR-8, was resistant to at least four main diseases, reducing pesticide costs.

Another type just going out on a commercial basis is the IR-42.

Under ideal conditions, the IR-42 produced five tonnes a hectare in the rainy season and almost eight tonnes in the dry season but the main advantage lay in its ability to withstand limited droughts and floods, Dr Khush said.

The IR-56, an even more disease-resistant variety, was approved for release earlier this month, which should help diversify the genetic base of improved varieties already being grown widely in Asia.

The IR-56 takes just 105 days to *mature* which will enable farmers in areas with assured irrigation round the year to grow three crops annually.

HAU expert panel

Haryana Agricultural University has appointed a five-member expert committee to monitor the progress of work done by the university under the 20 point programme, it was officially announced recently.

Headed by the Vice-Chancellor, Dr D.R. Bhumbla, the committee has the Directors of Extension Education, Research, Planning and Formulation, Students Welfare and Projects as its members.

It has been decided to lay more emphasis on afforestation, farm forestry, utilisation of irrigation water and production of pulses.

Special cells have been created for research on these subjects. The university has also made a special provision in its budget for research projects undertaken under the programme.

Food analysis vital for public health

The Third National Orientation Course for Public Analysts organised by the Punjab Agricultural University concluded at PAU recently.

The Vice-Chancellor, Dr. Sukhdev Singh, presiding over the valedictory function, said that the Public Analysts were responsible for the public safety. He advised them to forego the outmoded techniques of food analysis and follow the latest food analytical techniques.

Earlier Dr. K.S. Sekhon, Head of the Department of Food Science and Technology of PAU and Director of the course told that the trainees were imparted thorough knowledge about the bio-cheimstry, processing and preservation and packing of food, food-borne diseases and latest techniques of food analysis.

Animals and birds for earning and learning

Haryana Agricultural University (HAU) has started the "earn while you learn scheme" in college of Animal Sciences also. In the scheme poultry and cows are allocated to students of Veterinary Science and Animal Husbandry. According to Dr D.S. Balaine, Dean of the College, the students are responsible for the total management of the poultry and animals under their charge and the earnings from the produce obtained from these birds and animals is divided amongst the members of the group. Dr Daya Singh said that students have to maintain a complete record of daily production, feed consumption, disease control, breeding and strength of the birds and animals. To begin with a broiler unit of 250 day old chicks and a dairy unit of four milch cows was run. The units were run for 60 days and 30 days respectively by group of students who earned Rs 100 to 150 per month in both the units. Now a unit of Japanese quails has also been allocated to students for learning and earning.

The Department of Livestock Production and Management which runs the scheme provides feeding, watering, housing and other facilities to the students. Dr R.A. Singh, Professor and Head, Department of Livestock Production and Management said that in the beginning the students are trained for milking and other management operations by instructors. Milk, meat and eggs of the "earn while you learn" units are sold through the sale centre of HAU. The scheme provides opportunity to the students to take practical decisions for better growth, production, management, feeding and breeding of animals and birds.

UAS celebrates world environment day

'The World Environment Day' was celebrated at the University of Agricultural Sciences, Bangalore on June 5, 1982. Inaugurating the programme, Mr Jayakumar Anagol, Special Secretary to Government of Karnataka, said that even though man was conscious of maintaining a harmonious environment consisting of flora and fauna, there were famines in the past. He drew the attention of the University to the Stockholm U.N. Resolution for the preservation of clean environment and requested to draw up programme to create awareness among farmers and general public.

Delivering the key-note address, Prof. D.K. Subramanyam, Special Officer and Ex-Officio Additional Secretary to Government of Karnataka, stressed the need to constantly survey the national resources through such techniques as remote sensing and suggest methods for effective and non-destructive usage. He urged the need for formulating more projects on environmental science with the assistance of several funding agencies.

Earlier, Dr P.B. Deshpande, Professor of Chemistry and Soils, Agricultural College, Hebbal, Bangalore read a brief report on the activities connected with agriculture and environment including soil erosion, soil conservation, fertilizer and pesticides usage, irrigation with industrial affluents, and recycling of industrial by-products in agriculture.

Dr K.S. Krishna Sastry, Director of Instruction (Agri), Agricultural College, Hebbal welcomed the gathering and Dr K. Krishna Murthy, Director of Research of the University proposed a vote of thanks.

HAU abolishes seat reservation

Haryana Agricultural University has abolished the system of reservation of seats for different categories of students in its postgraduate courses. A decision in this regard was taken by the university recently, it is reported.

Hitherto, of the 70 seats in MSc available in the College of Agriculture only 14 were available under the open quota. As a result only those on the merit list of the basic degree course could get admission to the MSc course.

There is a growing demand for the abolition of reservation of seats in the undergraduate courses of the university also, it is reported.

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Dhoop Narain. Some crock problems opened by forces at crack faces in a rectangular domain. Kanpur University. Dr. A.P. Dwivedi, Department of Mathematics, Harcourt Butler Technological Institute, Kanpur.

2. Gupta, Prabhawati. Study of fourier series equations and integrals and their applications in elasticity. Kanpur University. Dr. A.P. Dwivedi, Department of Mathematics, Harcourt Butler Technological Institute, Kanpur.

3. Gupta, Radhey Govind. Certain integral and sequence equations in solving special functions. Kanpur University. Dr. A.P. Dwivedi, Department of Mathematics, Harcourt Butler Technological Institute, Kanpur.

4. Jai Ram. On mappings between fuzzy topological spaces. Kanpur University. Dr. K.K. Azad, Department of Mathematics, F.G. College, Rae-Bareli.

5. Lagoo, A.G. On asymptotic expansions of special functions and their approximation. University of Indore. Dr. V.M. Bhise, Reader, Department of Mathematics, Shri G.S. Institute of Technology and Science, Indore.

6. Lal Chand. Applications of stochastic processes. Maharshi Dayanand University. Dr. R.K. Tuteja, Reader, Department of Mathematics, Maharshi Dayanand University, Rohtak.

7. Misra, Janardan Kumar. A study of the rheological behaviour of physiological fluids. Kanpur University. Dr. P.N. Tandon, Department of Mathematics, Harcourt Butler Technological Institute, Kanpur.

8. Mohd. Ilyas. Some problems on magnetoelastic interactions. Kanpur University. Dr. Daya Shankar Pandey, Department of Mathematics, Christ Church College, Kanpur.

9. Pandey, Rama Kant. On certain classes of univalent and multivalent functions. Kanpur University. Dr. G.P. Bhargava, Department of Mathematics, P.P.N. College, Kanpur.

10. Shukla, Jai Narain. On some estimates of univalent functions. Kanpur University. Dr. G.P. Bhargava, Department of Mathematics, P.P.N. College, Kanpur.

11. Tripathi, Beta Lal. Some mixed boundry value problems of elasticity. Kanpur University. Dr. A.P. Dwivedi, Department of Mathematics, Harcourt Butler Technological Institute, Kanpur.

Physics

1. Kaul, Surinder Kumar. Electron transport properties of chalcogonide glasses. University of Delhi. Dr. B.K. Shivpuri, Department of Physics, University of Delhi, Delhi.

2. Malik, Gurinder Singh. Microwave electronics. University of Delhi. Prof. G.P. Srivastava, Department of Physics and Astrophysics, University of Delhi, Delhi.

3. Mehta, Satish Kumar. Application of low-high juncture to semiconductor devices. University of Delhi. Dr. S.C. Jain, Department of Physics and Astrophysics, University of Delhi, Delhi.

4. Patil, Sujata Manohar. Electrical and magnetic properties of some mixed ferrites and rare earth garnets. Shivaji University. Dr. A.S. Vaingankar, Department of Physics, Shivaji University, Kolhapur.

5. Shah, B.M. Studies on drying phenomena by solar energy. Bhavnagar University. Dr. K.S. Rao.

6. Sharad Kumar. Microwave electronics. University of Delhi. Prof. G.P. Srivastava, Department of Physics and Astrophysics, University of Delhi, Delhi.

7. Sharma, Yogesh Kumar. High energy nucleon-nucleus scattering. University of Delhi. Dr. J.D. Anand, Department of Physics and Astrophysics, University of Delhi, Delhi.

Chemistry

1. Appa Naidu, G. Organometallics. University of Delhi. Dr. P.N. Kapoor, Department of Chemistry, University of Delhi, Delhi.

2. Arya, Prabhat. A chemical study of naturally occuring bio-active compounds. University of Delhi. Prof. A.C. Jain, Department of Chemistry, University of Delhi, Delhi.

3. Beer Singh. Alkoxide chemistry. University of Delhi. Dr. P.N. Kapoor, Department of Chemistry, University of Delhi, Delhi.

4. Dasgupta, Sunanda. Studies on biological activities of dehydropetides. University of Delhi. Dr. V.S. Chauhan, Department of Chemistry, University of Delhi, Delhi and Dr. T.A.V. Subramanian, Department of Chemistry, V.P. Chest Institute, Delhi.

5. Gupta, Pawan Kumar. Organic chemistry. University of Delhi. Dr. H.G. Krishnamurty, Department of Chemistry, University of Delhi, Delhi.

6. Jack, Dennis Thomas. [illegible] studies of natural and syntheti[illegible] Dr. M.H. Jagdale, Head Depa[illegible] University, Kolhapur.

7. Jain, Anil Kumar. Organic chemistry. University of Delhi. Prof. S.R. Gupta, Department of Chemistry, University of Delhi, Delhi.

8. Khan, Saeed Ahmad. Chemistry of natural products. University of Delhi. Prof. M.K. Krishnamurthy, Department of Chemistry, University of Delhi, Delhi.

9. Khera, Brij. Metal complexes. University of Delhi. Dr. N.K. Kaushik, Department of Chemistry, University of Delhi, Delhi.

10. Mahajan, Madhu. Chemistry of natural products and use of inorganic reagents in organic synthesis. University of Delhi. Dr. S.S. Chhiber, Department of Chemistry, University of Delhi, Delhi.

11. Nisha Kiran. Coordination chemistry. University of Delhi. Dr. B.S. Garg, Department of Chemistry, University of Delhi, Delhi.

12. Prashar, Meenu. Organic chemistry. University of Delhi. Dr. D.K. Bhardwaj, Department of Chemistry, University of Delhi, Delhi.

13. Prashar, Sangeeta. Sensitized photo oxygenations of organic substrates. University of Delhi. Dr. S.S. Chhiber, Department of Chemistry, University of Delhi, Delhi.

14. Satija, Narinder Kumar. Development of new chelating agents and their protective value in the treatment of heavy metal toxictity with special reference to lead. University of Delhi. Dr. H.B. Singh, Department of Chemistry, University of Delhi, Delhi.

15. Sharma, Pawan Kumar. Synthesis of some naturally occuring compounds. University of Delhi. Dr. R.N. Khanna, Department of Chemistry, University of Delhi, Delhi.

16. Tehim, Ashok Kumar. Synthetic organic chemistry. University of Delhi. Prof. V.K. Ahluwalia, Department of Chemistry, University of Delhi, Delhi.

Earth Sciences

1. Jain, Anil Kumar. Sedimentological studies of sands derived from different stratigraphic horizons of M.P. with special reference to industrial and engineering parameters. University of Saugar. Dr. S.K. Babu.

Engineering & Technology

1. Chander, S.D. Application of finite element method to fluid flow problems at high Reynold's number. University of Delhi. Dr. B.C. Sachdeva and Dr. R.K. Bansal.

2. Jain, Narendra Kumar. Performance evaluation of thermal regenerators adapting recirculation with steam injection. University of Indore. Dr. A.I. Khandwawala, Reader, Department of Mechanical Engineering, Shri G.S. Institute of Technology and Science, Indore.

3. Raj Kumar. Metal formation. University of Delhi. Dr. A S. Sachdev and Prof. P.L. Ballapey.

4. Ray, U.C. Switching response of pn junction devices including the effects of generation recombinations in the emitter and non-uniform devices. University of Delhi. Dr. S.C. Jain and Prof. P. Kundu.

5. Singhal, R.P Shear spinning of tubes in hard to draw materials. University of Delhi. Dr. B.K. Aggarwala. Dr. Rajnish Prakash.

BIOLOGICAL SCIENCES

Microbiology

1. Chaturvedi, Shobha. A study of the role of peroxidase in endocrine hormonal regulation. University of Indore. Dr. (Miss) Prabha Agarwal, Lecturer, Department of Life Science. University of Indore, Indore.

2. Punita. Genetics of nitrogen fixation and nodulation in Rhizobium. Haryana Agricultural University.

3. Sharma, Suresh. Genetics studies of yeast for ethanol production. Haryana Agricultural University.

Marine Biology

1. Ramavat, B.R. Studies on chemistry of marine alga of Saurashtra coast. Bhavnagar University Dr. A.V. Rao.

Medical Sciences

1. Mungee, Mridula. Role of Zinc in some dermotological disorders. University of Indore. Dr. N G. Sethi, Lecturer, M.G.M. Medical College, Indore.

2. Shukla. Rimi. Studies on the membranes of mycobacteria University of Indore Dr P.S. Murthy, Head, Department of Bio chemistry, University College of Medical Sciences, *New Delhi.*

Agriculture

1. Dhawan, Punam. Studies on the epidemiology and control of bud disease of tomato in India Haryana Agricultural University.

2. Gandhi, Sudershan Kumar. Studies on bacterial blight of guar (Cyampsis tetragonoloba (L) Taub caused by Xanthomonas campes tiris pv. Cyamopsidis (Patel, Dhande and Kulkarni dye). Haryana Agricultural University.

3. Monga, Dalip. Survival pathogenesis and chemical control of Fusarium solani in different soils. Haryana Agricultural University.

4. Ramesh Kumar. In vitro studies on the behaviour of different barley genotypes with respect to salinity tolerance. Haryana Agricultural University.

5. Sharma, N.N. Phosphorous uptake by chick pea as influenced by moisture stress and concentration and distribution of P in soil. Haryana Agricultural University.

Veterinary Science

1. Al-Ribdawi, Yousef. Effect of stocking rate and level of protein on the performance of broilers during hot, hot-humid and cold seasans. Haryana Agricultural University.

2. Nayar, K.N.M. Evaluation of ether as general anaesthetic in buffalo calves. Haryana Agricultural University.

3. Sanyal. Prabir Kumar. Some studies on bionomics, intertransmission, chemotherapeutic trials and immunity to Bulaline *coccidiosis. Haryana Agricultural University.*

4. Sharma, V B. Prediction of nutritive value of tropical forages from their chemical composition and fecal components. Haryana Agricultural University.

5. Singh, T.J. A pharmacological and toxicological study of fungicide thiophanate methyl. Haryana Agricultural University.

6. Sulochna, S. Histological and histochemical studies on the development of mammary glands during pregnancy. Haryana Agricultural University.

7. Yadav, R.S. Effect of three rearing systems on growth performance of female buffalo calves. Haryana Agricultural University.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Balasubrahmanyam, P. On functions, regular in the unit disc with special reference to univalent functions and their subclasses. University of Madras.

2. Chatterjee, Supriya. Contributions to the study of weighted shift operators. University of Delhi.

3 Elumalai. S A study of interpolation, approximation and strong approximation. University of Madras.

4. Jha, Mahendra Prasad. Contributions to sample survey techniques involving multiple characters. University of Delhi.

5. Krishnaiah, Yasam Siva Rama. Contributions to the weak convergence of empirical processes for dependent sequences with applications to some problems of inference. Osmania University.

6. Mishra, Shiva Kumar. Analysis of compact operators. Magadh University.

7. Misra Umakanta. Some aspects of the theory and application of absolute summability. Berhampur University.

8. Olea Josephine Fernandes. Ostrom's ovals and the four point Pascalian oval. University of Poona.

9. Qazi Zameeruddin. A study of multiplication rings through self injective rings and quasi hereditary rings. University of Delhi.

10. Sarojamma, G. Magnetohydrodynamic convective flows. Sri Krishnadevarya University.

11. Sinha, Rajni Kant. Some contributions to the theory of topological vector spaces. Magadh University.

12 Sivakesan. P. Some researches in potential theory. *University of Madras.*

13. Suryadevara, Rama Mohan. Some rigorous mathematical aspects of fluid flow problems in porous media. South Gujarat University.

Physics

1. Abdul Rashid. Group theory and its application on particle physics. University of Kashmir.

2. Akundi, Suguna. The theory of electron-hole droplets. University of Hyderabad.

3. Balakrishnan, R. A study on the physical properties of irradiated collagen fibres. University of Madras.

4. Barhate, Arvind Vasantrao. Study of the L III absorption spectrum of Rhenium and in some of its compounds. Nagpur University.

5. Durvasula, N.R.U. Study of total electron content of the ionosphere over Waltair using geostationery satellite signals. Andhra University.

6. Gogawale, Shivaji Rajaram. Spectroscopic and aeronomic studies of hydroxyl radical. University of Poona.

7. Gundu Rao, K.A. Contribution to the magnetic field analysis of iron core electromagnets with different pole designs. University of Madras.

8. Jog. Jyoti Prakash. The electrical properties of fluorinated ethylene propylene (pure and grafted). University of Poona.

9. Misra, Sudhakar. Theory of magnetic susceptibility of interacting electrons in solids. Berhampur University.

10. Nambinarayanan, T.K. Ultrasonic studies on the nature of molecular interaction of some solutions. University of Madras.

11. Pandey, Brahma Kishore. Rb-Sr geochronological studies of some granitic and gneissic rocks of Kumaun and Garhwal, Himalaya, Uttar Pradesh, India. Panjab University.

12. Paul, Nirmala. Investigations on the electrical characteristic *of certain semi conductor films* and polymerized paratoluidine films. University of Cochin.

13. Sainkar, Sudhakar Ramchandra. Electron spectroscopic studies on metal oxide varistors. University of Poona.

14. Sharma, Sheshmani. Solar activity variation effects on cosmic rays. Awadhesh Pratap Singh University.

15. Sundararajan, P.R. Conformational aspects of vinyl polymer chains. D.Sc. University of Madras.

16. Syamalamba, Y. Studies in solid state physics: Preparation and characterisation of thin films of indium gallium-antimony semiconducting systems. Sri Venkateswara University.

Chemistry

1. Adhyapak, Nilima Gopal. Studies on diffusion of some labelled ions in agar gel. University of Poona.

2. Bhat, Narayan Gajanan. Isolation and some interesting transformations of terpenic compounds University of Poona.

3. Chhabra, M.S. Kinetics of the oxidation of some easters by chloramine T. Bhopal University.

4. Chincholkar, Madhukar Motiramji. Synthesis of heterocyclic compounds. Nagpur University.

5. Daga, Hanumandas Mathuradas. Studies on the formation constants of metal complexes in solution. Nagpur University.

6. Dounde, Suvarna. Isolation and structure elucidation of compounds of potential pesticidal and biological activity. Osmania Univercity.

7. Farook, S. Mohammed, Kinetics of the addition of bromine to olefins in solution. University of Madras.

8. *Gholap, Achyut Shankar. Mango flavour-analysis* and biogenesis, University of Poona.

9. Ghose, Jagannath. Insect juvenile hormone mimics. Panjab University.

10. Gupta, Rajive Kumar. Search for possible amebicides. University of Jammu.

11. Jayaraman, S. Kinetics studies on the chlorination of certain anilides and anisoles in solution. University of Madras.

12. Kulkarni, *Achut Vasudeo. Electrochemical studies of* cations on solid electrodes, University of Poona.

13. Kulkarni, Rajendra Anant. Expansion coefficient of polyelectrolytes: A viscosity and light scattering study of hydrolysed polyacrylamides in solution University of Poona.

14. Landge, Aravind Baputao Studies in polyisoprenoids and related compounds. University of Poona.

15. Mehetre, Ashok Namdeo. Chemical reactions of excited and ionized molecules. University of Poona.

16 Mehta, N B. Studies on solution properties of polymers, Saurashtra University.

17. Mukhopadhyay, Pradyot Kumar. Chemical study of some medicinal plants of India. University of Calcutta.

18. Namasivayam, C. Studies on the photochemistry of copper (II) amino acid chelates and vinyl polymerization reactions initiated by these complexes. University of Madras.

19. Narinder Kumar. Synthesis in terpenoids. Panjab University.

20. Patel, Chandrakant Purushottamdas. Studies on cellulose acetatephthalate. Sardar Patel University.

21. Periyasamy, M. Synthesis and studies of some alternating copolymers. University of Madras,

22. Pradhananga, Raja Ram. Preparation, electrical conduction and thermoluminescence studies of lithium chloride single crystals. University of Poona.

23. Rajaraman, Lalitha. Kinetic studies on the bromination of certain substituted thiophenes in solution using N-bromosuccinimide. University of Madras.

24. Rana, Arjunsinh Kanaksinh. Structural studies on *metal chelates of some 4-substituted 3-methyl-1-phenyl-2-*pyrazolin-5-ones. Sardar Patel University.

25. Riyazuddin, P. Analytical applications of some amineoximes in the spectrophotometric determination of Fe (II), Co (II), N_1 (II) and Pd (II) and selective gravimetric determination of N_1 (II) and P^d (II). University of Madras.

26. *Satyanarayana, Dasari. Studies on tannins and* related compounds. University of Madras.

27. Satya Pal Singh. Some aspects on the chemistry of carbonyl compounds and nitroso derivatives. Awadhesh Pratap Singh University.

28. Sekhara Rao, Chalasani Seshu. Studies in molecular rearrangements. University of Madras.

29. Sengupta, Soumitra Kumar. Studies on some transition metal complexes of substituted pyridine derivatives. University of Delhi.

30. Shah, Nareshkumar Amritlal. Studies on polymers (synthesis, solution, mechanical and thermal properties of poly (2 methoxy-cyanurate of bisphenol A and bisphenol C). Sardar Patel University.

31 Shaik Sondu Kinetic and mechanistic aspects of oxidation of some organic compounds by cerium (IV). Osmania University.

32 Sharma, Vidu. Structure and biosynthesis of benzylisoquinoline derived alkaloids. Meerut University.

33. Shrivastava, Santosh Kumar. Studies on some leguminous seeds. University of Jabalpur.

34. Subramanian, P. Synthesis and characterization of new polymers. University of Madras

35. Subrahmanyam, Ch. Kinetics of electroreduction of organic compounds in acidic solution at mercury pool electrode. Sri Venkateswara University.

36. Veda Vrath, R. Kinetics of oxidation of organic compounds by thallium (III) acetate. Osmania University.

Earth Sciences

1. Borgohain, Rajani. Sedimentological studies of the Bagh beds of Man, Uri and Waghni river valley of Dhar *District, Madhya Pradesh. University of Poona.*

2. Chandrasekaran, V.A. The geology around Gingee, North and South Arcot Districts, Tamil Nadu University of Madras.

3 Jogigder Singh. Sedimentological studies of the permotriassic rocks in the eastern parts of Kashmir within latitude 30 57′—34° 57′ N and longitude 74° 50′-75° 08′ E. University of Jammu.

4. Krishnan, C. Navaneetha, The alkaline complex of the Pikkili area, Dharmapuri district, Tamil Nadu, South India. University of Madras

5. Narayanan, A.C. Geology of lateritic soils Sri Venkateswara University.

6 Premchand, Kolli Some aspects of the intermediate water mass structure in the Western Indian Ocean Andhra University.

7. Rajan, D Henry. The geology around Chengam North Arcot District, Tamil Nadu. University of Madras.

8. Srivastava, Ashok Kumar. Study of some steatite and talc deposits of Andhra Pradesh Osmania University.

9. Umadevi, Kodukula. Some studies on agroclimatic aspects of Orissa state. Andhra University

10. Venkataraman, B. The geology of the area Southeast of Rajapalayam Ramnad and Tirunelveli Districts, Tamil Nadu University of Madras.

11. Yedekar, Dhananjay Balkrishna A study of the North Almora 'thrust' zone between Chaukhutia and Someshwar, Almora District, Uttar Pradesh. University of Poona.

Engineering & Technology

1. Kaleem K. Studies on graft copolymerisation of chlorinated rubber with acrylate monomers. University of Madras

2. Kanniyapan, E P. Studies on the modification of some natural polymers and their application on leather. University of Madras.

3. Kuppusamy, K. Successive linear programming methods for security related optimization in power systems. University of Madras.

4. Mathews, Mary. Effects of crosslinking treatment at the yarn and the fabric stages and of different weaves on physico-chemical properties of all cotton and cotton viscose fabrics. University of Madras.

5. Paramjit Singh. Studies in urethane oil systems. Panjab University.

6. Rajan, T.S. Heat transfer: Simultaneous heat and *mass transfer studies in thorough circulation drying.* University of Madras.

7. Sarma, Garimella Sarweswara Somayajula Some new capactive transducers and signal processing methods. University of Madras.

8. Subbiah, V. Investigations on the steady-state operation of thyristor bridge convertors with a general load. University of Madras.

9. Vaishnav, Suryakant Vishnuprasad. Behaviour of reinforced concrete beam-columns under biaxial loading. M.S. University of Baroda.

BIOLOGICAL SCIENCES

Palaeontology

1. Gaur, Rajan. Palaeontology and palaecology of pliopleistocene of Upper Sivalik sediments in the Northeast of Chandigarh. Panjab University.

Anthropology

1. *Gunasundaramma, K. Fertility and family planning* among the Balijas of Tirupati, Andhra Pradesh. Sri Venkateswara University.

2. Venkateswara Rao, Potluri. Human chromosomal heteromorphisms and associations between chromosomes among new borns of Delhi. University of Delhi.

Biochemistry

1. Prasanna, C.V. Biochemical effects of acetaldehyde and aldehydism contributing to alcoholism. University of Madras.

2. Pushpa. Studies on some aspects of the role of ascorbic *acid in cholesterol metabolism. Panjab University.*

3. Sambasiva Rao, Jasty. Biochemical studies on collagen in protein malnutrition. University of Madras.

4. Sivasithamparam, Niranjali. Some studies on the edibility of mango kernel fat. University of Madras.

Biology

1. Kawosa, M.A. Analysis of a forest ecosystem in Kashmir valley with particular emphasis on the impact of man's activities on its structure and function. Saurashtra University.

Marine Biology

1. Bojan, J. Biology of crustacea with special reference to biochemical changes in the body components of Metapenaeus monoceros (fabricius) (crustacea; decapoda) during its moult cycle. University of Madras.

2. Lakshmanan, P.T. Investigations on the chemical constituents and trace metal interactions in some bivalve molluscs of the Cochin backwaters. University of Cochin.

Microbiology

1. Patel, Niranjana Paragbhai. Cellulose production by Scytalidium lignicola and some studies on microbial degradation of Magnifera indica var Alphonso Wood. Sardar Patel University.

2. Vaidya, Hemant Chunilal. Alkaloid production by submerged Claviceps species, strain SD-58-physiology of phosphate effects. Sardar Patel University.

Botany

1. Akella Rama. Biochemical and genetical studies on temperature sensitive mutants of Aspergillus nidulans. University of Madras.

2. Anand, V.V. Anther culture studies in solanaceae-Nicotiana tabacum L. University of Mysore.

3. Annamma, P.J. Some physiological and biochemical studies on the acquatic weed Selvinia molesta Mitch treated with 2-4-dicholorophenoxy acetic acid. University of Madras.

4. Behera, Ballabh Narayan. Cytogenetic hazards from agricultural chemicals-III. Berhampur University.

5. Bhamburkar, Saroj. Experimental mutagenesis in black gram (Vigna mungo (L.) Hepper). Osmania University.

6. Chavan, R.R. Systematic anatomy of secondary phloem in Dicots. Sardar Patel University.

7. Chinnaswamy Naidu, A. Epidermal and palynological studies in some plants of laminaceae. Sardar Patel University.

8. Danej. Alka. Studies on certain enzymes of pathogenic fungi causing disease of some solanaceous fruits. Bhopal University.

9. Daniel, Jeyson. Some investigations into Indian agaricales (mushrooms): Agaricales of Kerala. University of Poona.

10. Govindan, V.S. Studies on algae in relation to treatment of wastewaters. University of Madras.

11. Kale, Jyoti Chandrakant. Soil fungi of western Maharashtra. University of Poona.

12. Kamlesh. Investigation on some biochemical aspects of growth and development of *Impatiens balsamina* as influenced by some phenols and GA3. Panjab University.

13. Kapadia, Sulochana G. Biochemical genetical studies on galactose non-utilising mutants of Aspergillus nidulans. University of Madras.

14. Katyayani, M. Individual and combined effects of gamma rays and nuvacron on the cyto-morphological and physiological variabilities in Vigna radiata (L.) Wilczek and Trigonella foenun-graecum L. Kakatiya University.

15. Keshwal, Ramlal Singh. Studies on bacterial wilt of solanaceous crops caused by Pseudomonas solanacearum E.F. Smith with special reference to its control. University of Jabalpur.

16. Kharbteng, Jrial Sibon. Morphogenetic responses of ether treatments in medicinal solanums. North Eastern Hill University.

17. Kulkarni, Shrikant Muralidhar. Some investigations into Indian agaricales (mushrooms). University of Poona.

18. Magdum, Dhanchandra Kallapa. Mycoflora of Ganeshkhind Area. University of Poona,

19. Meenakshi, R.M. Variation in the physiological and biochemical response of paddy varieties (Adt-4 & Co-31) to induced steady state water stress. University of Madras.

20. Mehta, Pratima. Uptake and assimilation of nitrogenous salts by leaves and its effects on some plant processes. University of Indore.

21. Nandi, Renupada. Studies on growth, development and senescence of some medicinal plants with special reference to their active principles content. University of Burdwan.

22. Narayana, B.M. Systematic studies in some members of the vernonicas (Asteraceae). University of Mysore.

23. Narayanaswamy, P. Phytotoxin production by groundnut (Arachis hypogaea) plant. University of Madras.

24. Neekhra, Mohini. Studies on fungi from Jabalpur soils with special reference to litter decomposition. University of Jabalpur.

25. *Pathak, Saswati. Studies on the developmental* physiology of bulbous ornamental plant (Polianthes tuberosa L.) with special reference to flower longevity and keeping quality. University of Burdwan.

26. Ramanujam, M.P. Phytotoxic metabolites of Cercospora personata (B&C) E II and Everh, the casual fungus of tikka leaf spot disease of groundnut. University of Madras.

27. Rangayya, S. Studies in mimosaceae-pericarp structure. Sardar Patel University.

28. Singh, Mahendra Nath. Morphogenetic studies on the female gametophyte of Ephedra foliata Boiss. University of Delhi.

29. Singh, Netra Pal. Flora of Eastern Karnataka. University of Poona.

30. Yashodhara, P. Physiological effects and allelopathic studies of Cyperus rotundus L. Osmania University.

Zoology

1. Achyuthan, K.E. Polypeptide constituents of snake venom. Osmania University.

2. Anjaneyulu, V.V.R.K. Some aspects of carbohydrate metabolism in denervation and atrophy of the gastrocnemius muscle of toad, Bufo *melanostictus. Sri Venkateswara University.*

3. Arumugam, M. Studies on haemolymph copper of Scylla serrata (Forskal) (crustacea: decapoda). University of Madras.

4. **Bhan, Surinder Kumar.** Studies on edible penacid prawns of the Gulf of Kutch. South Gujarat University.

5. **Datta, Ranu.** *Biochemical* changes during embryonic and post-embryonic development of Earias vitella (noctutidae: Lepideptera: Arthropoda). University of Burdwan.

6. **Debnath, Ramendra Kr.** Taxonomic studies of Tanypodinae (chironomidae: Diptera) of West Bengal. University of Burdwan.

7. **Devanath, K.S.** Experimental studies on the endocrinology of reproduction in the female skipper frog. University of Mysore.

8. **Dhas, M. Michael Arul.** Thyroid-testicular interrelationship. University of Madras.

9. **Ghate, Hemant Vasant.** Effects of industrial pollutants on some freshwater animals. University of Poona.

10. **Gunasingh, A.** Role of estradiol-17 on the reproductive physiology of Rana hexadactyla Lesson pertinent to lipid utilization. University of Madras.

11. **Joshi, Subodh Indulal.** Biological ecophysiological and histological studies of mudskippers Boleophthalmus dussumicri and Boleophthalt mus Viridis of South Gujarat. South Gujarat University.

12. **Kamalakara Rao. A.P.** Electrophoretic studies in some South Indian mugilides—a biochemical approach to taxonomy. University of Madras.

13. **Kumara, Pillai, C.** Studies on the breeding biology and egg development in a freshwater crab Paratelphusa hydrodromous (Herbst). University of Madras.

14. **Mondal, Lakshmi Narayan.** Histological, histochemical and biochemical studies of the male reproductive system of some insects of West Bengal. University of Burdwan.

15. **Mushtaq Ahmed.** Effect of newer pesticides on some normal *metabolic processes of cockroach (Periplaneta* americana Linn.) and rat (albino). Kakatiya University.

16. **Pal, Jayanta Kumar.** Studies on lens crystallins during development of Calotes versicolor. University of Poona.

17. **Raja, S. Sabita.** Certain biochemical studies during the development of Chilo zonellus Swinhoe (lepidoptera: pyralidae). Osmania University.

18. **Rama, S.** Some aspects of the physico-chemical properties and molecular organisation of fish collagens. University of Madras.

19. **Ramalingam, K.** Studies on the effect of sublethal concentrations of a few toxicants on biochemistry physiology and histology of Tilapia mossambice (Peters) University of Madras.

20. **Selvanayagam, M.** Studies on South Indian acquatic hemiptera (family: Gerridae). University of Madras.

21. **Sukavani, K.** Bio-ecological and taxonomical studies on some South Indian embioptera (insecta). University of Madras.

22. **Vajirabooshani.** Biology of a fouling Polychate dasychone Cingulata Grube *of Madras. University of Madras.*

23. **Valivullah, H. Mohammed.** Adrenal cortext-testis interrelationship. University of Madras.

24. **Venkata Rao, Mari Satti.** Studies on the organisation histology and histochemistry of digestive, nervous and reproductive systems of Gryllus bimaculatus de Geer (insecta: Orthoptera). Andhra University.

Medical Sciences

1. **Anantharaman, V.** Electrophysiological studies in neuropathies and in *hatha yoga training.* University of Madras.

2. **Bandyopadhyay, Asim.** A study of biological dressing in burns with special reference to placental membranes. University of Calcutta.

3. **Rani Bai, A.J.** Investigations on the metabolic alterations associated with the control of diabetes mellitus by Gymnema sylvestre R. Br. University of Madras.

4. **Brahmadathan, K.N.** Bacteriology and serology of streptococcal pyoderma in South Indian children. University of Madras.

5. **Chandrika, C.** Plasma lipid lowering action of Annapavala sindhooram-a siddha medicinal formulation in the treatment of atherosclerosis. University of Madras.

6 **Ghosh, Prahladchandra** Ligand-mediated uptake of biologically active molecules and drugs by different tissues. 'University of Calcutta.

7. **Janardhan, A.** Toxicological and teratological studies of monocrotophos and methylbenzimidazole carbamate. Osmania University.

8. **Kedar, Padmini.** Influence and comparative study of Momordica charantia. Tamrindus indica. Syzygium Jambolana and oral hypoglycaemic drugs on STZ induced diabetes mellitus. Nagpur University.

9. **Natarajan, Saraswathy.** Mycotoxicoses of Penicillium rubrum Toxicosis: Studies in rats. University of Madras.

10. **Nazimudeen, S.K.** Investigations on the chemistry and pharmacology of Indian medicinal plants University of Madras.

11. **Sahoo, Biswanath.** Environmental pollution of mine atmosphere with special reference to particulate pollution. I.S.M., Dhanbad.

12. **Sathyakumar, C.** Preparation of vaccine for syphillis. University of Madras.

13. **Sinha, Manjusha.** Biophysical studies on DNA-histone and DNA-drug complexes. University of Calcutta.

Agriculture

1. **Bandyopadhyay, Basudeb.** Agronomical and physiological studies on rice grown under flood and deep water situation. University of Calcutta.

2. **Desai, Gopal Rao.** A critical analysis of the contribution of education and extension guidance to economic performance of cotton farmers of Karnataka state. University of Agricultural Sciences, Bangalore.

3. **Ghurayya, Roop Singh.** Studies on rate of nutrient uptake and dry matter formation in four high yielding wheat varieties of different stages of growth. J.N. Krishi Vishwavidyalaya.

4. **Gumaste, Subhash K.** Studies on intercropping of lucerne with hybrid cotton (Varalaxmi) and hybrid Sorghum (CSH 5). University of Agricultural Sciences, Bangalore.

5. **Kalia, Bishan Dass.** Effact of graded doses of nitrogen and phousphorous with and without Rhizobium culture and liming on the growth, yield and quality of soybean (Glycine max (L.) Merrill). H.P. Krishi Vishwavidyalaya.

6. **Kaushal, Gopal Singh.** Characterisation and classification of soils of Bargi project districts, Jabalpur and Narsinghpur. J.N. Krishi Vishwavidyalaya.

7. **Krishna, K.S.** Development of the scale for measuring the effectiveness of rural youth clubs and its application. University of Agricultural Sciences, Bangalore.

8. **Mukhopadhyay, Amitabha.** A standardisation of agrotechniques in tuberose (Polianthes tuberasa L) and carnation (Dianthus caryophyllus L). University of Calcutta.

9. **Sharma, Kailash Chandra.** Rural elites and agricultural modernisation. South Gujarat University.

Veterinary Science

1. **Dhaka, Jai Parkash.** Study of market surplus and supply functions for milk in the plains and high ranges of Kerala state. Panjab University.

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Ackroyd, Stephen and Hughes, John A. *Data collection in context*. London, Longman (c1981) 155p.

Agarwal, Adesh. *Achievement motivation and time perspective.* Agra, National Psychological Corp. (c1980) x, 125p.

Baechler, Jean. *Revolution*, tr. by Joan Vickers. Oxford, Basil Blackwell (c1975) xxiv. 208p.

Bhatia, S.C. *Education and socio-cultural disadvantage*. Delhi, Xerxes, 1982 151p.

Bhattacharya, A.K. *Problem of educated unemployment in India*. Meerut, Meenakshi (c 1982) 98p.

Bowen, James. *History of western education*. 3V. London, Methuen, 1981.

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Programmes for Colleges

(*Continued from page 459*)

family could be emphasized. In this endeavour there should be no room for despair and whatever little success is achieved should be considered as a positive gain and further efforts made to help in the growth of our society. A national will for having a learning society has to be created.

It has become cliche to say that the poor have become poorer and the rich, richer but the academic community is eminently suited to take up this issue and remove the disparities in our economic set up by making such knowledge available to an individual as would help him to live a fuller and a more satisfying life.

The Indian University Association of Continuing Education could help in producing relevant readable literature in order to improve the efficiency and competence of people working in various sectors of our economy, follow-up action could then be taken by arranging workshops or orientation course wherever the need is felt in collaboration with appropriate agencies/institutions in a state. This will activate the programme of Continuing Education and help the Association in having effective collaboration with the colleges and other relevant agencies. For this purpose a Publication Bureau needs to be established without any further delay and experts and scholars invited to write on topics relevant to social development of the community in an area. The elitist and intellectual community should have something positive to offer individually and they should make it widely known what it is that they have to offer.

It is also important that the colleges take up their programmes expeditiously and make up for the lost time by serving the community around them.

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Mrs. M.R. Mawlong
REGISTRAR

PUNJABI UNIVERSITY

PATIALA

No. 7-A/Estt/PRO/SPS/Cor/82

CORRIGENDUM

Reference Advt No-7-A/Estt/82 published in the News Bulletin dated 1/7/82, there is a general condition for *teaching* and research posts that candidates for teaching and research posts should possess working knowledge of Punjabi upto Punjabi Preveshka standard. Persons from outside Punjab could, however, be considered for appointment but they will be required *to give an undertaking in writing that* they will acquire the requisite qualifications in Punjabi within a period of two years.

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Reader: Consistently good academic record, Doctoral degree, five years' experience of teaching post-graudate classes.

Lecturer : (Except Business Management).

(a) A Doctorate's degree or research work of an equally high standard; and

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(a) *Consistently* good academic record, First or high second class (B in the seven point scale) Master's degree in a relevant subject from an Indian University or equivalent degree from a foreign University; and

(b) **(Except Lecturer in English)**

An M. Phil degree or a recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research work.

(For Lecturer in English)

An M.Phil degree or a recognised degree or diploma in the teaching of *English/English* studies beyond the Master's level or published work indicating the capacity of a candidate for independent research work.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard, it may relax any of the qualifications prescribed in (a) above.

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University
News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH AUGUST 1, 1982

r. Raja Rao, an Indian Novelist, presenting Dr. William Mulder with a shawl on 7th June, 1982 when the cholars at the American Studies Research Centre bid farewell to Dr. Mulder who was its Director for three years.

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UNIVERSITY NEWS

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AUGUST 1 1982

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IN THIS ISSUE

Science—Teacher Preparation 489
Master's Degree Programmes in Jammu : Key Issues & Reforms —A Student's Viewpoint 490

Convocation

Agro-Horti-Silvi and Animal Production System 492

Campus News

Conference on Regionalism and National Integration at Gauhati University 496
New Courses at Kashmir 496
Summer Institute in Mathematics 497
Gauhati organises refresher course in geography 497

Agriculture

HAU strengthens tissue culture research 498
Exhibition on Insects 498
A new rice variety 499

Science & Technology

Computer and mineral exploration 499
Iron-ore processing investigated in Australia 499

News from Abroad

Scientists develop living pesticide in Australia 500
Grain storage conference in Australia 500
Research in Progress 501
Theses of the Month 501
Current Documentation in Education 504
Classified Advertisements 507

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

An Appraisal of Correspondence Education

P. Krishna Prasad*

Introduction

The idea of 'university in air' voiced by Herold Wilson in 1963 attracted the attention of many educators in Britain and led to the establishment of an Open University at Walton Hall, Buckinghamshire in 1969. Presently the University has come to serve as a model for supersession of the closed room education system all over the world. In India the system of education through correspondence was originally introduced by Delhi University in 1962, followed by four other universities between 1967-69 and a bunch of 20 or more universities during the decade thereafter.

In the last decade concepts like 'Continuing Education', 'Distance Education', etc. gained wide publicity and popularity. In 1974 the UNESCO executive board expressed the opinion that life long education is the key to modern education and stressed the relevance of continuing education to third world countries. Even the International Commission for the development of education has sponsored and supported the idea of open education system. The open system of education is to be viewed in the perspective of low literacy rate, high poverty and the other pathetic conditions prevailing in the underdeveloped and the developing countries.

A great majority of the people in these countries do not have the opportunity of higher education for a variety of reasons. Recognising the need to provide them vistas for higher education, more than 20 universities have come to offer degree courses through correspondence. The enrolment for correspondence courses has been on an increase. However the enrolment is not uniform in all the regions. While five centres (Delhi, Madurai, Mysore, Punjab and Rajasthan) accounted for 81% of the total enrolment in 1977-78, the populous states like U.P., Bihar, M.P. reported very small enrolment. The correspondence unit of the Andhra University recorded 1.1% of the total enrolment in its first year of establishment in 1973-74 and witnessed a slight growth upto 1.7% in 1977-78. However after 1980s the Andhra University Correspondence Unit is also exhibiting a sharp increase in enrolment like the correspondence centres at Madurai and Mysore. It has been observed that there is a fast growth in enrolment for higher education rather than for under-graduation. While welcoming this fast growth in enrolment for higher education, the organisers of the courses are to be careful and cautious in upholding the standards and the sanctity of the system. If the utility of this system of open education is to be significant, there is a need for a careful assessment

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**Department of Politics & Public Admn., Andhra University.*

and analysis of the beneficiary and also measurement of their attitudes, etc. which means that a well designed feed-back is a must.

Coaching through correspondence is a novel system in which the students do not require to possess formally any previous qualifications. Age perhaps is the only condition for eligibility. As such the correspondence system is to be well planned and a lot of follow-up action is very much required. The organisation of a correspondence cell involves specialised skills and hence the organisers require to be specialists.

In addition to the mailing of reading materials the correspondence centres also organise personal contact programmes of normally of a week's duration once a year. As the objective of this paper is to emphasize upon the necessity of feed-back by presenting the reactions and responses of the students of correspondence school (the sample size is 150) through an interview schedule.

The interview schedule is designed to trace three aspects pertaining to the students of correspondence courses. They are as follows:

(1) Biographical analysis of the students.

(2) Motivational/Incentives/Stimulational factors prompting the students to join the correspondence school.

(3) Students opinion about the organisation, methods and procedures of the courses offered by the School of Correspondence.

Sample

The total size of the sample is 150. Out of the total sample 34% belongs to the final year while the remaining to the second year graduation. The percentages of the final and second years in the sample are in proportion to their total enrolment in the school. All the subjects in the sample belong to the Arts faculty as the instruction in the sciences is not facilitated by this particular unit under study. The interview schedule has been given to all the students in those sections which figured in the lots. The students are not given advance information about the interview. They were asked to answer the schedule when they were supposed to receive a contact lecture. By following this procedure the researcher has assumed to have controlled all the variables pertaining to the subject in the sample.

Results and Discussion

(1) Biographic analysis of the Interviewees in the sample

It is interesting to note that 37.93% of the students belong to the age group of 31-40 years while 14.48% belong to 41 years and above group, 20.95% are in the 26-30 range while only 18.92% are between 20-25 years group. The percentages of the age ratios make evident that most of the students have already crossed over their age of studentship.

It is interesting that 65.52% of the interviewees have identified themselves as employees of either Government, Semi-Government, Autonomous bodies or local bodies. 9.65% of them are the employees in the private sector. Only 19.31% of the respondents are found to be either House-wives or dependent on others i.e. without employment (salary based). The employment percentages of the sample confirm their being well over their optimum age of studentship.

59.46% of the sample reported as having come from the rural background. On the other hand 20.94% and 13.51% have mentioned to have enjoyed semi-urban and urban environment respectively. A question on parents' educational qualifications had elicited the responses of 43 per cent being the children of parents with elementary or without any education at all. However only 6.12% have been the children of parents with graduation and above. Regarding the parents occupational background the parents of the 21.92% of the students are the white-collar workers and the remaining are more or less evenly distributed among the Blue collar, Agriculture/Cultivation, Cooli and other manual labour, petti trades and commerce etc.

The above data presents a picture that the students of the correspondence courses are mostly those who have given up their education or who have discontinued the studies for a variety of reasons. The study revealed that the financial status of more than 50 per cent of the parents is well below the poverty line. As such it is imperative that a good majority of them have given up their studies due to their poor economic background. A good percentage of the students possess S.S.L.C. or P.U.C. as their previous educational qualification. Hence the correspondence school is catering the needs of the aged who wish to continue their education rather than those who could not get admission in the regular courses because of their poor performance in their previous courses. This could be cited as the real reason for the success of correspondence schools in achieving results comparable to that of the regular colleges. Further the data also suggests that the system of education through correspondence serves the cause of continuing education. The caste-wise distributions are as follows. Forward castes are 39.19% while Backward Castes and Scheduled Castes are 22.30 and 16.89 per cent respectively. Scheduled Tribes are only 0.68 per cent while a good percentage of the respondents (20.94) have not answered the question. Religion-wise about 74 per cent are Hindus and only a few are Muslims while 10% have been identified as Christians. However the data indicate that the system of correspondence education is contributing for the upliftment of the downtrodden sections of the society, who were forced to discontinue their education for financial reasons, by providing them vistas for continuing education.

(2) Motivational/Incentives/Stimulational Factors which prompted the students to join the School of Correspondence Courses:

In this particular portion of the paper the researcher wishes to project what could have been the stimulants that had reinforced the respondents to continue their education. While furnishing the information given by the students to the interview schedule it is felt useful to interpret the biographic analysis wherever it is felt relevant.

To a question on how the respondents come to know about the facility of correspondence courses 60 per cent of them have answered that they have come to know on their own through advertisements in newspapers. About 28% of them have admitted as being informed and encouraged by their friends. Only 6% of them have been doing the course on the initiative taken by their parents. 41.21 per cent of the respondents stated that they are doing the course by joining the School of Correspondence Courses with an expectation of benefits namely 'promotion' and 'additional increments'. 16.97 per cent of them have been expecting the course to fetch them social status. 23.64% have reasoned out several other things in which the prominent are "securing a degree is their life ambition, "to seek employment", "to acquire knowledge" and so on. 13.33% are taking it as hobby while 4.85% have not answered the column. To a similar question of how does the present course serve their interests 54.67% have opted for 'social and educative value', while 25.33% agreed with the option 'job promotion and job opportunities'. Only 3.33% mentioned other reasons and 16% did not answer the item.

The data clearly indicate that a good percentage of the students have self-reinforcement and that they have been doing it either for psychological reasons (i.e. self contentment) or material purposes like 'a hope that it might enhance their opportunities and chances to earn their bread etc; and as many of them are for promotion and additional increments. As such their motivation would be very strong beyond extinction and that achievement orientation would be high among them. Further the data also suggests that these students are distinct from those who study their courses in regular colleges in regard to motivation and achievement orientation; and also differ significantly in their socio-economic background and attitudes from the latter. The significance of this distinction lies in the fact that the students of open education system need to have self-reinforcement while regular college going youth receive incentives from all around.

(3) Attitudes of the students toward Procedure, Methods and Organisation of the Courses

In this part there are three aspects: one relating to the lessons that are being supplied to the students by School of Correspondence Courses: the second concerning the organisation and usefulness of contact programmes and the last pertaining to the organisation of the school in general and other problems the students feel in doing the course.

70 per cent of the students expressed their displeasure over the way how the lessons are written. The lessons are criticised as sub-standard when compared even to the material available in the guides sold in the outside market. The printing of the lessons is reported to have full of spelling and grammar mistakes. A good majority said that the reading material they receive from the School is not designed to be useful for self-teaching and as such they have to take coaching from a private teacher which means an additional financial burden for them.

86% of them indicated that the reading material is not being sent well in advance and sometimes certain lessons do not reach them till the examination day. The students have made several suggestions of how the lessons can be made effective. A panel of experts on each subject may sit for a week in an year at an appointed and arranged time and place. The expert' sessions will be provided with a moderator and the moderator will be summing up the discussions of experts on each chapter. In this process the finalisation of all the chapters of a paper or subject will be over in a week. These experts should essentially be drawn from different centres (one from each district). This is important since the students need to have accessibility to one or other expert in every subject. This is also useful since it provides the students to correspond with the expert whenever he has some doubts or problems in the subject. Lessons or reading material supplied to the students is a cause of agony and hence a solution of the above model is urgently sought. Care is to be taken in proof reading and printing of the material and if any mistakes are found in the printed lessons an errata is to be communicated.

Regarding the coaching in the Contact Programmes 47.97% said that they like the coaching very much while 33.10% ticked the option 'good'. 14.86% have indicated that it is just satisfactory. But none of them have answered in negative. Though a good majority of them are happy with the programme, they are very critical and apprehensive about the arrangements, plans, programmes and scheme schedules of the school. Many of them did not receive the information about the contact programme in advance. None of them could come to the programme with a thorough preparation of the lessons, since they have not even received them. Because of these organisational inadequacies and ill-arrangements, the purpose of the very programme is lost. The one week contact programme is arranged so as to facilitate the students to get their doubts clarified. It means they have to come to the programme with thorough preparation of the subject. On the other hand the teachers assigned with the contact lectures have been finding it difficult to reach the whole syllabus in about 6 or 7 hours. 82.15% of the students have expressed the opinion that the duration of the contact programme is to be increased. This problem can be solved by arranging experts as the regional consultants.

About 36% expressed the opinion that the programme is useful for it educates the students about the approach to the subject. 23% marked doubts clarification as the utility of the programme while 20.7% felt it enhances the self-confidence of the students. However, 8.04 per cent felt the Contact Programme gives a feeling of a regular student: and 4.06% expressed the programme to provide them change of life for a while.

Regarding the organisation of the school in general, a good majority expressed their dissatisfaction over the administration, for the school does not maintain proper correspondence with the students.

65.54% are happy with the medium of instruction. On the other hand 33.78% want the lessons to be printed in English while 61.47% wanted the reading material in Telugu.

About 31.08% felt the fees collected by the school as very high while 31.76% indicated it as high. Only 25% have the opinion that the fee is nominal. However, 64.20% of them felt that even the students of School of Correspondence Courses are to be given financial assistance.

In addition to these the vast majority of students voiced against the arrangements made during the contact programmes. The students reported as not having transport facilities, catering facilities etc.

To a question of what could be the problems they feel in the course, the responses indicate that

For 23.4% 'Guidance' is the problem
16.90% understanding
16.43% information
12.68% encouragement

while others are distributed evenly among the choices, reading, writing, examination fear, etc. The problems the students cited to have in doing their courses may be due to their being private candidates and once again reaffirm the fact that they are very much dissimilar and distinct from the regular students. Hence the great responsibility of solving the problems of the students is to be taken up by the school. Though the students are guided through correspondence, they should be given a feeling that they are very much like college going students. The problems like guidance and understanding may be analysed with an explanation of the fact that a reasonable percentage of students do not possess any previous qualifications.

The problem of 'encouragement' is borne by the fact that a good majority of them are older than required to do the course and that they have to continue their studies on part-time basis (for they are pre-occupied in some job or other to feed themselves and their families). As such those of them who could self-generate the reinforcement, do not require any encouragement while others face this problem continuously.

Propositions

The researcher wishes to advance some propositions basing on what the data suggests. The propositions are intended to elicit some rethinking over the reorganisation of the system of open education.

1. Since the students of correspondence school differ significantly from regular college-going students, a separate syllabus and a separate mode of examination may be devised to suit the cause of the former.
2. Students of correspondence school are to be provided with regional consultants in each subject to act as course tutors.
3. Students are to be provided with self-assessment tests periodically.
4. The data suggests that the organisation or administration of the school is to be geared up to be effective in communication The organisational inadequacies relating to preparation, printing and mailing of reading material demand the immediate attention of the authorities.
5. The fees collected by the correspondence schools may be reduced to a minimum making the system accessible to every one.
6. Financial assistance (in the form of reading material free of cost, etc.) may be provided to the deserving students of correspondence courses as it might boost up their morale and motivation. Even other incentives may be designed to attract greater number for admission into the school.

Conclusions

Having advanced the above propositions, the researcher wishes to say that these propositions assume importance if taken into account the 'what' and 'how' of the beneficiary. Unfortunate that Correspondence scoools have not made adequate arrangements for proper feed-back; resulting in the running and continuation of the novel experiment i.e. system of open education, on the conventional lines of closed door education. The distinct nature of socio-economic backgrounds, age and the psychological make-up of the correspondence students call for syllabi and mode of examination different from that of the present one, designed for regular college youth. The arrangement of systematic feed-back is essential and urgent for it enables the organisers of the school to have better idea of what the students want and their opinions, attitudes, etc. The feed-back is even more important for it can be a reinforcer to the students. The study confirms the need for reinforcement (non-material and mostly psychological) through feed-back as it only can ensure the system of open education a grand success. The syllabus and the examination pattern are to be redesigned in order to enable the system of open education to facilitate continuously for the intake of feed-back. □

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Science—Teacher Preparation

J.S. Rajput*

It hardly needs repetition that scientific progress and technological growth have been extremely rapid during the last few decades. There is ample evidence to concede that this will remain so in future as well. The consequences of this rapid progress will continue to affect all walks of life, including the human approach to life itself.

The problem before each one of us is how to make a gainful use of these developments. Tremendous effort is being put in this direction. We can visualise three aspects : the explosion of knowledge, its management, channelisation and utilisation and transference to the next generation. The last obviously is largely the prerogative of the teacher and there too, for certain very valid reasons, the role of science teachers is likely to attract greater attention. He has on the one hand the additional inputs in curriculum, and on the other, the larger numbers in the classrooms to handle, with of course limited resources.

Let us try to formulate the objectives of science teaching in a slightly unorthodox way keeping in view the present position and the current expectations. The science teacher has to ascertain the full potential of his pupils and help in their total development. He 'teaches'

—to enable the young ones to react to changing environment with rationality and scientific temper.

—to foresee the future environment and identify such elements as are likely to contribute to it significantly and

—to anticipate such contributions on their own part as would influence the future environment in a positive direction.

This obviously cannot be achieved by teachers so long as the mere transfer of knowledge is taken by them as the major professional obligation. There is no dearth of such learned individuals who opine and see a neck to neck race between education and catastrophe. The only way to salvation instead of catastrophe is, again education geared to the above mentioned objectives.

In the International Conference on Physics Teaching (1981, Trieste, Italy), it was pointed out that research with observation schedules shows that 70 per cent of activities in some physics classes in U.K. were teacher-dominated and some important aspects like design of experiments were never discussed. In another study presented at the conference, three teacher styles were mentioned : solving problems (48%), giving information (34%) and enquiring (18%). It was surprising to find that project meant for the third style was found congenial to such a small minority of teachers. In biology, even today, the lecture-laboratory approach hardly presents the subject as a dynamic and growing field of discovery.

Why does such a situation arise despite all efforts to change it ? What are the factors which must be identified and included in science teacher preparation programmes so that these teachers are capable of identifying the style, suitable and satisfying to themselves professionally and appropriate to the growth, development and learning of pupils in their charge ? Some probably could be listed as under :

—The teacher must observe his own way of work and analyse the same to incorporate such changes he considers expedient.

—The teacher must be convinced of the need to change, whenever and wherever necessary, his approach, style, habits, and even personality itself : The way teachers work : science teachers must 'work with the pupils'.

—The teacher must appreciate the necessity of not only teaching but also talking to his pupils and effectively listening to them. Listening could be a positive rainforcement in the style and approach of the teacher.

—The activities involving a pupil's initiative require extra effort. Resource mobilisation and its appropriate utilisation also depend upon his willingness.

—A basic understanding of the behaviour and background of the pupil is as necessary in science teaching as in any other discipline. In imparting instruction in science at the elementary stage, one has to break several barriers.

—None else can give the teacher a methodology suitable in all aspects to handle a particular topic, particular group of pupils or specific situations. He himself has to evolve the same. He must be prepared for modifications at each stage and through every source.

—Science teaching has to be interesting, understandable and human. No approach, style or methodology can afford to neglect this aspect. Efforts are to be made to link it to the individual's life and his environment.

—The science teacher must understand and appreciate the role of the appropriate language in his effort. Ability to communicate in a language within the reach of the child is a must.

—The teacher must guard against becoming a

(*Continued on page 495*)

**Principal Regional College of Education, Bhopal.*

Master's Degree Programmes in Jammu : Key Issues & Reforms

—A Student's Viewpoint

Keshav Sharma*

It is a matter of much satisfaction that Jammu University has accepted student participation in the policy framework, and realized that seminars on the vital educational issues without students would be a futile exercise. Students are an essential concomitant of the learning-teaching process and by inviting them the University has already achieved a very basic reform.

The seminar is being held at an appropriate time and the discussion of this topic in the prevailing chaotic atmosphere of unrest, discontent and indiscipline is quite the need of the hour. Only exacting standards of quality in higher education and a satisfied student community can put the nation back on rails of progress and prosperity.

Overhaul the curriculum

What is the justification of graduate or, for that matter, postgraduate curricula which cannot guarantee success even in the lowly clerical cadre of the commercial world ? Our conscious and unconscious mind, in fact the entire thought process, is haunted by the ghost of unemployment and a very uncertain future. The World begins to seem hollow and life a burden. And all this is because of our traditional, unscientific and archaic syllabus which does nothing to equip us for the realities ahead and the practical aspects of life. Being a student of commerce, I may assert that atleast the commerce syllabus is hopelessly inadequate. For example a vital subject like management is taught at three levels with the same sketchy content and coverage in the 1st year, the 2nd year and M.Com. previous. How can it arouse interest among the students ? The syllabi of a professional course like Commerce is indeed very patchy and needs to be revised and revitalised. One fails to understand the importance of English literature along with Hindi and Urdu at the college level. The most relevant subjects given weightage in good universities, namely, Cost Accounts, Company Law, Insurance, Industrial Law, indepth study of the Indian Economic Problems, International Trade, Current Affairs, Commercial English and many others find no place in our curriculum. We need to strengthen and update syllabi and it is high time that the Boards of Studies of the various departments made an earnest effort in this direction. In fact, there is need of a complete reorientation of syllabi right from the PUC level so that we have the much desired initiative and enthusiasm for higher learning.

Admissions to colleges and the University

The admission procedure is such that it lays emphasis on the number of seats in every department, thereby ensuring that a guaranteed number will regularly lengthen the unending queue outside the employment exchange. With the ever growing numbers of the unemployed one cannot help questioning the wisdom of strengthening it with sizeable batches of postgraduates every 12 months. The need of the hour is quality and not quantity and hence a meaningful restraint on admissions.

Vital supplementation of the curricular activity

An earnest endeavour for effecting the intellectual rejuvenation of the university can be made by constituting Academic Committees in every department of the University. These committees should be entrusted with the task of organising seminars, debates, symposia and a continuous exchange with employment agencies and the world of professional managers. Such activity should not form a part of mere internal assessment in the prevailing situation. Keeping in view the merits of internal assessment, I strongly feel that colleges and post-graduate departments must be assessed and enforced to include such activity. There is a grievance among a section of the student community that they are being taken to task for diverting in such activities. This can be solved by making such intellectual exercises integral to the essential curriculum. There should also be prizes for those who perform well. In my opinion this ought to boost intellectual urges in an aspiring scholar and provide him with the conducive milieu and environment. The role of the academic committees would be to chalk out before the beginning of the semester session the schedule of the entire intellectual activity to be taken up. Besides, an overall departmental prize may be given to the all-round best student. Eventually student's assessment may well take into account these activities.

Basic facilities and tools of learning

Our libraries which should be the main stay of semester system are ill-equipped and poorly appointed. What have the students got to learn when responsible employees of the University cry at the top of their voices and engage in loud acrimonious exchanges as if a fire had broken out—mere cry would have been understandable on the day the Library

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**Department of Commerce, University of Jammu.*

caught fire! Most of the fans in the text book seection do not work. The dust and the cobwebs in the library rooms certainly do not confom that the entire building is a recent construction. The departmental libraries, believe it or not, are in much worse shape. We cannot afford such extra vagant waste. We are the inhabitants of a country which ranks among the seven poorest of the world.

Constructing new buildings is important but maintaining them and the older ones is even more important. As I have said we are a poor nation, technically we can easily enter into "Capital Formation" and hence have to adopt a policy of 'Maintaining Capital Intact'. Suitable words cannot be found to depict the shabby plight of the Jammu University. Let the daily work-a-day routine and even our own time tables, by all means, include cleaning and tiding up the place.

Sanctity of examinations and their schedules

What to talk of a University which does not have a firm and regular schedule and so easily succumbs to, for instance, the postponement of examinations. The result is that the examinations are held at the wrong time as a consequence of which there is the late declaration of results making it impossible to sit for career-oriented examination and seek admission in various courses especially those outside the state. This has sometimes resulted in some of our youngmen selected for commissions in the Armed Forces losing them because the results were inordinately delayed. Frankly, the ever lengthening rope at the graduate and post-graduate levels and showing no resistance against walkouts from scheduled examinations followed by liberal re-examinations is a blot on our University. I am a student and cannot stand for disregarding the genuine demands of the students even for re-examination etc., but can anything justify as many as sixteen walkouts by the graduating class, in 1980-81. Eleven examinations were reallowed. This is not being liberal or considerable to me, it is an indiscipline and a deliberate compromise of educational values.

Coming to the assignments, I am afraid, they too are an exercise in futility and a device to turn-out people having no knowledge of the subject whatsoever. The assignments are the photostat copies of the various books recommended. They should in this case be either wholly eliminated or a viva on the assignments should be a must to make them meaningful. Assignments should involve thought provoking questions. And they should be more or less problem oriented for a better understanding and application of student's mind.

The time has come for the exalted administration to give patient heed to the student community. Let us give up prestige issues and get to grips with the basic tools or teaching and learning. Let this seat or higher learning disregard all recommendations and pressures. Let the appointment of would-be teachers in the faculties be made strictly on merit and consistent with the practical situations of a class room rather than in half an hour interview in the airconditioned ivory towers. Let us also not dilute the teacher-taught ratio to ensure intensive coaching nay tutorials and proper care of every student.

The University has been reverberating with the higher talk of reorienting educational syllabi in the light of the needs of the society. In fact semester system was introduced with one such objective as preparing students for specific fields instead of charming out square pegs for round holes. But, I have yet to see atleast one active information bureau in the entire university, what to talk of information bureau in every department. Every department must have an information committee entrusted with the task of announcing compulsorily the various employment opportunities available to the students of that department. This can be done on the last working day of every month, or more frequently if necessary.

Some general recommendations

It is also felt that the choice in examination papers be limited; revaluation procedure be expedited; more cyclostyling and printing facilities be granted in every department so that the important discussions and lectures can be cyclostyled for quick distribution and future record; more hostel facilities be extended to students who belong to places outside Jammu; sports and recreational facilities be increased; students be given representation in academic bodies and every activity that concerns them directly and so on.

Why is semester not a success

Semester system does not seem to have evolved organically and is perhaps not in consonance with the culture of the Jammu people. Changes should be brought from the roots than from above. The postgraduation problems are infact the backlog and problems of lower classes at the college level where a thing like sitting in the library, mutual and class discussions and so on are the things as if they do not exist. It seems to be a herculian task to cope with a fine system as semester. For the present boys who seem to have no aim save for the obsessive desire to get a degree somehow.

Present semester system

True, whenever there has been a change, it has met with resistance. But the kind of resistance we are witnessing in this University is beyond rational conception. Students are forcing, in fact have successfully forced the university authorities to make semester system no more than two examinations in one year with the initial yearly syllabus meant for one annual examination broken up into two and the same old system continuing viz. 80% external assessment and 20% internal assessment based on photostatic reproduction. The semester system should aim at greater intellectual freedom, more scholarship and conducive environment.

Conclusion

Anyway, students have their problems and authorities theirs. All are real. There are administrative constraints on the one hand and political and economic on the other. If, after all our failures, one can still hope for a better tomorrow, it is only through an earnest desire to take things to a higher plane and discarding the practice of "look busy and do nothing". □

Convocation

Agro-Horti-Silvi and Animal Production System

Excerpts from the convocation address delivered by Dr. H.R. Arakeri, Chairman, Agricultural Scientist Recruitment Board, ICAR, New Delhi, at the Konkan Krishi Vidyapeeth.

"..Maharashtra has adopted multi universities concept from the beginning. Some other states have also thought it fit to adopt this pattern although the opinion prevailing in the country is not in favour of it. Only history will show whether this is a right pattern.

"Every area has long traditions and for that reason it is difficult to develop recommendations and also make farmers accept any change. Unless we take note of peculiarities, social aspects and also the inherent wisdom in systems and practices evolved through the ages, one is likely to commit mistakes which may lead to disastrous consequences. It is for this reason that the present day researcher, teacher and extension educationist has to try and understand the wisdom that prevails in rural areas before any attempt is launched for change...

"This region consisting of maritime districts, is hilly with some plain areas along the coast. Rainfall is heavy but restricted to a period of little over four months. This period gets reduced as one goes north. Fertility of soil is generally poor because of intense leaching. Once upon a time vast areas in this region were covered with dense forest and now these areas are bereft of vegetation. Natural grass grows in abundance in the rainy season. Grass is of poor quality especially with regard to important nutrients—calcium and phosphorus. Animals are, therefore, dwarfed and not well built. Fisheries is a common avocation along the coast.

"The region forms a hinterland to the metropolitan city of Bombay. A lot of labour for work in the urban area is drawn from this region. Some of the needs of the city like fruits, vegetables, fish, fuel wood etc., are met from this region.

"With this back-drop of the ecology of the region we can examine the assets and liabilities as also the scope and need for getting the maximum from the former and for counteracting the latter.

"The renewable natural resource of the region is water received through rainfall. This resource which is in plenty should be put to maximum use by holding it in the soil profile and under as well as above ground. Storing of water above the ground is possible through major, medium and minor projects. There are, however, inherent problems as far as irrigation projects are concerned. I do not wish to say much about the possibilities or otherwise of such projects except that wherever it is possible to harness and use water through this means either for the purpose of agriculture or for generation of power, it should be done after taking into consideration engineering and economic feasibility aspects.

"There is another feasible way of storing water for seasonal use in this region. It is holding of water in the natural water courses which are usually deep by constructing weirs with gates. Gates are to be kept open during the heavy rainfall period and at the close of the season gates can be lowered and water held back in the valleys. Water thus stored can be lifted and used for growing various crops like vegetables, forage crops, pulses and oilseeds in the winter season. Such attempts are being made since last few years but they could be intensified and all sites should be utilised in shortest possible period.

"Holding of water underground and in soil profile is another question which needs very careful and intense attention. While the water stored in soil profile is needed for immediate use of the vegetation growing during the season, the underground water would become available through streams and rivers for a long time almost throughout the year. Problems of drought due to shortage of moisture in the rooting layers of soil are not serious during the monsoon season when crops are grown. Even then crops are observed to suffer when there are long breaks in spite of the fact that there is no shortage of water in the lower layers. Such situations can probably be met by having shallow wells in the low lying area of each plot and by lifting water from such source and spreading it on the surface. This water would probably soak in quickly. It can be brought back to the surface once again. This way available water can probably be recycled. This would mean initial investment on wells and pumping arrangement. The additional return would probably pay for the investment. Engineering, agronomic and economic feasibility studies are required to be carried out. This kind of proposition of recycling of available water has not been attempted It is worth giving a trial.

"The underground store consists of deep layers of soils in the hills, hill slopes as well as plains.

Deep penetration and storage is possible only when there is cover of tree vegetation. Formerly, when the land was covered with trees, the soil layers were acting like sponge. Roots of trees facilitated deep penetration and retention of water which was released slowly through a long period after the close of rainy season. This is how the streams and rivers had water flowing almost throughout the year. This was the source of water for the people and animals living in the forest areas. Now both of them are suffering considerably. The area bereft of tree vegetation is converted into roof top and as a result rain water instead of entering the deep underground layers, runs away along with soil and joins the water body causing havoc on the way.

"The only way to rectify the situation is to clothe the hills and sloping land with tree vegetation but of suitable kinds. Any and every tree species is not suitable for this purpose. It is also not necessary or appropriate to use only the native species. This is where there is an opportunity to study what is a most practicable way of achieving the objective that was served earlier by local vegetation and at the same time making the proposition economically and technically feasible.

"In recent years we have been talking of agro-forestry, silvi-pastural system, energy plantation, raising of multi-tier tree crops and so on. Plausible combinations for different kinds of forest and horticultural trees and different kinds of grasses and legumes for fodder purposes, should be worked out. This combination could be called agro-horty-silvi system. It should also be possible to add to it animal production activity to utilise the forage material. Thus we should be able to develop and advocate mixed system with varying proportion of trees, crops and animals. In these studies most important aspect that should be kept in mind as stated earlier is that of holding maximum quantity of rain water in the deeper layers of soil and ground. Study of root systems of diffeient trees and forage crops would be most critical. Similarly compatibility and allelopathic effect of one component on the other should also receive careful attention.

"Successful growth of vegetation depends to a very great extent on the fertility status of soil. I mentioned earlier that fertility status is low. Required attention will have to be paid to build and maintain the fertility standard by appropriate methods. Chemical method should be resorted to, but only when it is absolutely necessary. Probably the needs of phosphorus and calcium may have to be met through fertilisers and amendments. Unless this is done it will be difficult to improve the quality of forage material. Even the natural grasses in this region are required to be treated to improve the productivity levels and also the quality.

"It is not sufficient if only land and water utilisation and biomass production aspects are attended to. Appropriate utilisation of the produce could be possible only by developing the needed infrastructure consisting of processing, storage, transport and marketing facilities. Tree products including fruits can be transported as raw material or after processing. The demand for these products is increasing.

"It is necessary to explore how the forage material which would become available in large quantities and for a short period in a year could be utilised Animal production activities will have to be simultaneouly undertaken. It will be possible to allow the animals to graze or stall-fed with fresh harvest only for few months. During the remaining part of the year stall-feeding with hay or silage or mixture of both becomes necessary. Use of urea is recommended to make up shortage of proteinous feed supply. By planting forage yielding trees green topfeed would become available for a longer period. Silage and hay making processes have to be studied in detail and perfected. When plenty of harvest is available there is likely to be rainfall and as such appropriate drying techniques will also have to be developed and used.

"The next question about which consideration is required, is with regard to animal production activity that is appropriate for hilly regions. The activity can be milk or meat production. Both these activities need appropriate processing, transport and storage facilities. Yet another way is to raise milch or draft animals and market them. There is demand for ready to calve coss bred heifers as well as ready to yoke draft animals. Raising of such animals in these areas would be less costly. Details of the *modus operandi* have to be worked out along with studies connected with economic aspects.

"It is in the heavy rainfall areas that the development through research and adoption of appropriate land formation and levelling plan is most urgent. Some research has been carried out in the north eastern region by the ICAR Reseach Complex located at Shillong. Some work has also been done in the Himalayan region. Studies in the western and eastern coastal areas are insignificant...

"The fundamental question, however, has remained unanswered. This question concerns the lay-out of the land to conserve soil. Conservation here refers to prevention of erosion of soil as also that of fertility degradation. Because of heavy rainfall, erosion hazard is considerable. The studies as well as experience in some parts of the world have clearly shown that just bunding or terracing is no answer to this problem. Physical checks may work to some extent in plain areas where paddy is the commonly grown crop. But when the rain is heavy, retention of terraces in sloping lands is difficult and as a result even the terraced lands lose soil quickly and become permanently barren. One can witness to such situations in many parts of the world where rainfall is heavy and land slopy. The answer to this problem, therefore, lies in clothing such lands with vegetation especially of trees or mixture of trees and grasses as stated earlier.

"The question of maintenance of soil fertility status is more implied because of leaching of nutrients taking place continuously. Trees with deep root system can recycle the nutrients. The leached down nutrients are brought back to the surface through roots and leaves. It is for this reason that soils supporting tree vegetation have better fertility status than those brought under cultivation. It is for this reason again that some forest area was attached to garden land so that leaves of trees grown in forests could be harvested and applied to the soil around trees in the garden. This system is fast disappearing and as a result many deficiency diseases and other maladies are coming to surface in west coast areas in Karnataka and Kerala.

"The situation can probably be remedied by growing some trees in the garden. Even paddy, areas are likely to be benefited if trees are introduced and maintained in such a manner that both trees as well as field crops get benefit through such a practice. Recently it is reported that in Indonesia paddy yields increased from 0.7 tonne per hectare to 1.8 tonnes per hectare by growing rice between young forest plantations. Studies have been initiated in some counties of Africa to grow field crops between the rows of trees. Top growth of trees has to be managed suitably to prevent shading effect and also the problem of birds. This system has come to be known as alley cropping. Such studies are being initiated in Karnataka. It is for you to consider as to whether such a poposition has any scope in your region and initiate appropriate studies...

"Now I would like to say few words about the problems, the Country is facing. It has many problems to resolve. Two of them are the formidable ones, needing solution at the earliest. One concerns population increase and the other rural development.

India is one of the most thickly populated countries of the world; it has 15.3% of the world population and 2.5% of the geographical area. Population of the country has been increasing at a rapid rate during the last three decades because of improved public health facilities. Dr. McNamara, past President of the World Bank, expressed, "It is perhaps the most tragic irony of our times that better programmes of public health have unleashed the population explosion in the developing countries".

The density was just 77 per square kilometre in 1901 which rose to 117 in 1951 but to 221 in 1981. There are, however, some countries which are more thickly populated than India. Belgium had 325, U.K. 229, Japan 305 and Bangladesh 559 as against 190 in India in 1977. This does not mean that we should be complacent and make no efforts to stabilise population. Many countries in the world have almost attained or are striving hard to attain zero population growth. Even if we start making efforts in this direction from now onwards, it may take more than half a century before we can achieve such a level. Achieving this goal is possible only by taking appropriate measures regarding population education.

"Population education is not family planning. It is only through proper education that people can be made aware of the implications of population increase. It is through education alone that family planning can be brought about without any social or psychological conflicts. One of the most important facts that is required to be made known is that the survival rate has considerably improved...

"In this regard there is considerable scope for agricultural universities to include population education aspects in various courses at different levels. More research has to be conducted to comprehend the effect of population increase on agricultural production as a whole. Similarly extension personnel should be trained in population aspects so that they can convey the message to the farmers along with agricultural technology. This would be possible only if there is a realisation at all levels in the university that population education in important. It should be given due place in the curricula and also in research and extension activities carried out by Agricultural Universities with appropriate emphasis on various implications of population growth.

India is a rural country. Development of its rural areas is most imminent not only for its own sake but also in the interest of urban development. If there is continuous onslaught of rural people on urban centres, no amount of efforts to save them would be good enough...

The Community Development Programme was launched on 2nd October 1952. Integrated Rural Development strategy was conceived in 1976 which was stated to be more comprehensive and fundamental. It aimed at "systematic, scientific and integrated use of all our natural resources and as part of this process enabling every person to engage himself in a productive and socially useful occupation and earn an income that would meet at least the basic minimum needs". Many other programmes have been launched in the country in recent years with the objective of achieving growth with social justice. In spite of these attempts it must be said that the goal is not in sight. The goal is doubtful of achievement unless basic changes are made in the pattern of education at all levels. The motto should be, "education for rural development".

"Rural development is not just agricultural development although it is true that rural development is not possible without agricultural development. Access to various facilities like public health, education etc. to rural people is a prerequisite to rural development.....

"The problem of providing opportunities to the school going children, school drop outs and to adults to learn scientific methods of farming, better living aspects and about rural industries is a formidable one. This objective can be achieved only by providing:

1. Facilities in every school in the rural areas to learn basic principles and practices of modern agriculture, rural industries and better living.

2. Facilities in the form of polytechnics where drop outs can take intensive training in one or more avocations that one can practice.

3. Facilities for gaining and refreshing their knowledge from time to time for the adults.

4. Providing increased opportunities to have access to knowledge and information about farming and better living through mass media.

"Facilities stated above do exist to a very small extent. Space devoted to rural development matters is minimal in press. Only fraction of the population can have access at present.....

"I would like to bring to your notice that there is a shortage of well-qualified and appropriately trained persons in the Country. The number of posts advertised for the 1982 Agricultural Research Service Examination of the ICAR was 120. It was possible to select only 92. The number of posts advertised for 1982 Examination that was held in February 1982 was 227. The preliminary results are in our hands. It is doubtful whether it will be possible to select even half of what the ICAR wanted. It may be of interest to note that only 11 and 12 candidates appeared for the ARS Examination at the Bombay and Nagpur Centres, respectively as against 38 in Coimbatore, 41 in Bangalore and and 169 in Delhi. What does this show? Is ARS not very attractive or is it that there are very few post-graduates coming out from the universities in this region!? All the universities in this region may examine the question in depth and see why the number appearing in ARS competitive examinations in these centres is so small.

"I strongly feel that agricultural education facilities in the country are not expanding to the extent needed and will soon result in a dearth of personnel trained in agriculture. The development programmes may start suffering for want of trained personnel in the near future. This in one sector where the country cannot afford to slip for any reason and at any time. I, therefore, suggest that the Indian Agricultural Universities Association take on itself the responsibility of manpower planning and make arrangements for meeting the needs that are likely to arise in the near future and also in the long run. Detailed and earnest consideration in this regard is called for.

"Finally I would like to state that agricultural services as a whole have suffered all these years in status, prestige and recognition for want of oneness among members of the profession. There is a feeling that there is nothing common between those who deal with crops, animals, trees, fish, etc. They do not realise that all these disciplines are concerned with land and water resources development and utilisation. There is a large number of agricultural technologists working in different disciplines and sub-disciplines and in different sectors like research, teaching, extension, development, supplies and services and even production. For want of a suitable forum where they can come together, there is no unified thinking and unified direction of purpose. In the absence of unified thinking and direction it is not possible to appraise, advise and guide the policy makers and public men in general, in matters concerning agricultural development.

"It was difficult to bring together all the personnel with diverse interests on one common platform earlier. Now that the graduates in different disciplines come out from the same portals and under the common banner and have an opportunity to interact even before graduating, it should be easier to bridge the gap that existed earlier. I hope the younger generation will give this enough thought and act without much delay in the interest of the development of profession and ultimately that of the country." □

Science—Teacher Preparation

(*Continued from page 489*)

weak teacher as he grows in experience. He has to remain open to new experience and learning situations to re-equip himself from all available sources.

—The science teacher has a distinct role and he has to know about the same himself as well as make others realise the same.

So long as the teaching of science is entrusted to individuals having little faith in the process of science itself, the gain will be only marginal. This unfortunately is the pronounced state of affairs at the initial stage and continues to exist practically at each subsequent stage as well, though in slightly reduced measure. This question has to be paid sufficient and adequate attention. The relevance of teaching science has to be asserted and established by the teacher himself; others can only assist.

Further, unless science teaching at the elementary stage becomes realistic, appropriate and up-to-date, qualitative changes at higher stages would be difficult. It is the initial training in science which can develop a rational, logical and scientific outlook towards life in child.

THE SCIENCE-TEACHER HAS A CRUCIAL ROLE IN SHAPING THE ATTITUDE OF THE YOUNG MINDS TO LIFE; THE TEACHER HAS TO EQUIP HIMSELF PROPERLY FOR THIS. □

(*Courtesy* : The Hindu)

Campus News

Conference on Regionalism and National Integration at Gauhati University

(*From our correspondent*)

A Conference on Regionalism and National Integration in the North-Eastern Region of India was held on the Gauhati University campus on 10-12 June 1982 under the auspices of the Department of Political Science, Gauhati University. Professor Debo Prasad Barooah, Head of the Department of Political Science was the Convener of the Conference and it was held with financial assistance from the UGC, ICSSR and the Centre for Research in Rural & Industrial Development.

The Conference was attended on invitation by scholars and representatives from different Universities of the country besides University teachers, college teachers and student representatives from the north-eastern region. Thus, besides teachers from the host University, representatives from the Banaras, Kanpur, Kalyani, Dibrugarh and Manipur Universities attended the conference. Representatives from the following student organisations also attended: Mainpur University Students' Council, Post-Graduate Students' Union of the Gauhati University, All Manipur Students' Union, Tripura Tribal Students' Federation, All Naga Students' Association of Manipur, All Assam Students' Union and the North-East Region's Students' Union. Participation was on the basis generally of written papers and thirty academic papers were presented and discussed at the Conference, in four working sessions besides the valedictory session where the consensus statement reflecting the deliberations of the conference was adopted.

The inaugural function was presided over by Dr J.M. Choudhury, Vice-Chancellor, Gauhati University. The inaugural address was presented by Dr D.D. Narula, Member-Secretary, ICSSR. The Conference was addressed in two sessions by Mr H.Y. Sharda Prasad, Information Adviser to the Prime Minister. The sessions of the Conference were largely attended.

The valedictory function was presided over by Vice-Chancellor Dr Choudhury.

PU Syndicate decisions

The Panjab University Syndicate at its meeting held recently took the following decisions:

The number of foreign students in the local colleges has been restricted to 10 per cent of the total strength of the students in that college. It was also felt by the syndicate that this percentage should be reduced progressively.

It is recommended that the nomenclature of the degree of Bachelor of Science in Engineering and Master of Science in Engineering be changed to Bachelor of Engineering and Master of Engineering.

The Syndicate approved the rules and procedures to be followed by Colleges of Education affiliated to the Panjab University, for admission to the B.Ed. course for the session 1982-83, as recommended by a Committee.

A clarification from the UGC has been accepted for appointment as Lecturers in the affiliated colleges. A person will be required to have only good academic record at the Pre-Master's level. The U.G.C. proposal regarding extension in the period from five to eight years for doing Ph.D. or M.Phil. for the Lecturers of University Teaching Departments/Affiliated Colleges, as the case may be, has also been accepted.

The Government College, Port Blair, has been granted provisional extension of affiliation for the teaching of M.A. Hindi with effect from the admissions of 1982.

5-year Diploma Course in Art instituted at Government College of Art, Chandigarh, has been recognised as equivalent to M.A. Fine Arts of the Panjab University.

New courses at Kashmir

The University Council of the University of Kashmir authorised the institution of a Certificate Course in Library and Information Science through correspondence in the Institute of Correspondence Courses of the University.

The Council has also authorised the adoption of the regulations, relating to the Cost & Work Accountancy and Company Secretaryship Courses conducted in the post-graduate Department of Commerce of the University.

LL.M. classes have been started in the Department of Law of the University of Jammu. Ten students including a blind student have been admitted to the course.

Post-graduate classes in Bio-Chemistry and Home Sciences have also been started.

Karnatak University campus at Belgaum

Karnatak University, Dharwad, got its own campus at Belgaum inaugurated on 17 June 1982. The Guest of Honour at the function was Sri A.B. Jakanur, Minister for Labour, Government of Karnataka.

The 'Belgaum Campus' fulfils a long-felt need of the people of the districts of Belgaum and Bijapur. In his welcome speech on the occasion, Dr D.M. Nanjundappa, Vice-Chancelllor, Karnatak University, spoke of the plans envisaged for developing the campus gradually into a full-fledged residential university.

In the initial year 1982-83, seven post-graduate courses are offered, utilising the infrastructure already existing in the well established institutions of Belgaum. The courses are : Kannada, Economics, Geography, Commerce, Mathematics, Sociology and Marathi. Qualified teaching staff have been appointed and the Campus has started functioning smoothly. The K.L.E. Society of Belgaum has let the university the use of one of its buildings, free of cost, for a year.

Construction of buildings by the university is being taken up this year itself. Once the Campus gets strength, it is proposed to introduce sophisticated subjects like Military Science, Environmental Studies, Microbiology, Forestry, Rural Development and Computer Technology.

Microprocessor centre at Roorkee

A Microprocessor Application Centre, one of its kind has been established at the Roorkee University. The Centre has been established with a cost of more than Rs. 30 lakh with financial support from Ministry of Education, Govt. of India and would give much needed fillip to research and development activities in this area and will also provide training facilities in this vital field. Microprocessors have wide application in the area of engineering, defence, power generation, steel industries and other heavy industries.

New computer science course

The University of Delhi will be starting a new 3-year Master of Computer Applications course with effect from this academic year.

For 30 available seats selection will be through an entrance test. Graduates in science, mathematics and engineering and Honoures graduates in Economics and Commerce with mathematics are eligible to seek admission subject to other requirements prescribed by the university.

US team talks to professors at Madras

A 16-member faculty team from universities and other institutions in North Carolina, U.S.A., held an interesting discussion on 'The Impact of Science and Technology on Indian Society' with the Madras University Professors.

Prof. Evelyn Simmons of Meredith College, North Carolina, and Prof. S. Rajagopal of Grambling State University, Louisiana, were the co-ordinators.

The discussion covered aspects such as Industrial growth, Technological Planning, Education and unemployment. Eradication of poverty, Technological knowhow and its sharing between the developed and developing nations.

The object of the visit was to study at first hand how the Indian approach to science and technology to improve human conditions, differed from the western.

Summer institute in Mathematics

A 40-day All-India Advanced Level Summer Institute on Group Representations: Methods and Applications, was conducted at the Ramanujan Institute for Advanced Study in Mathematics from May 3 to June 11. The Summer Institute was attended by about 50 postgraduate college teachers from all over the country.

The objectives of the Institute, sponsored by the University Grants Commission, were: Introduction to Theory and Methods of Group Representation with application to (i) Finite Groups, (ii) Locally Compact abelian Groups, (iii) The Compact in non-abelian group SU (2).

Lectures on advanced level topics were delivered by staff members.

Gauhati organises refresher course in geography

A 21-day refresher course for the college teachers of Geography was organized by the Department of Geography, Gauhati University with effect from June 16, 1982. The course was sponsored by the University Grants Commission.

The objective of the course was to acquaint the college teachers with the new developments in the content and concepts in Geography and also to make them up-to-date in respect of the recently revised degree syllabus. Emphasis was laid on discussing matters relating to cartographic methods, quantitative methods, geomorphology, bio-geography, political geography and regional geography of N.E. India.

Several experts from Calcutta, Utkal and North Eastern Hill Universities, besides the teachers of the Department and the University, delivered lectures on relevant topics. As many as forty teachers from colleges, affiliated to Gauhati University, Dibrugarh University, Manipur University and North Eastern Hill University participated in the course. The course was organized under the directorship of Professor M. Barthakur, Head of the Department of Geography, Gauhati University.

New course in economics

A new inter-disciplinary M.A. course in Economics (Indian Economics) open to B.A. (Economics, Philosophy, History, Geography), B.Com., B.Sc. (Maths, Statistics), B.Tech or B.E. is being offered with effect from July 1982. The emphasis is on Logic and Scientific Methods, Quantitative Techniques, Economic Policy and Economic Administration, besides optionals like Urban Analysis and Environmental Studies.

Plasma laboratory at BIT, Mesra

A Plasma laboratory, claimed to be the first of its kind in any educational institution, is likely to be set up at the Birla Institute of Technology, Mesra, Ranchi. The estimated cost of the laboratory is Rs. one crore.

News from Agril. Varsities

HAU strengthens tissue culture research

"Tissue culture research has immense significance in producing disease free plants. Researches in this aspect can help to find solution to many of the poblems pertaining to susceptibility of plants to various virus infections", said Dr. D.R. Bhumbla. Vice-Chancellor, Haryana Agricultural University. He was speaking at the closing function of the Summer Institute on "Recent Advances in Plant Tissue Culture" organised by the Department of Genetics, Dr. Bhumbla advised the scientists to have an aptitude for research particularly in the unexplored areas.

Earlier, Dr. J.B. Chowdhury. Professor & Head, Department of Genetics disclosed that tissue culture techniques in addition to their significance in basic research may play an important role in various crop improvement programmes. He, further disclosed that the Department of Genetics has already undertaken a project on developing salt and disease resistant varieties in major crops of Haryana through tissue culture. This work is being financed by the Indian Council of Agricultural Research. Work on another project on rapid vegetative multiplication of female datepalm trees is also being conducted. The ICAR wants the department to strengthen the work on tissue culture in rice.

25 scientists from all over the country participated in the summer institute.

Advanced fruit course at PAU

A one-month advanced course called "Summer Institute" on laboratory techniques in horticultural research is being organised at the Punjab Agricultural University. Scientists from almost all States of India are attending this course sponsored by the Indian Council of Agricultural Research. Dr B.S. Dhillon, Professor of Horticulture is the Director of this summer institute. During the institute training will be imparted on sophisticated instrumentation involved in laboratory work for horticultural research. Post-harvest studies and prolonging the life of the fruits will be given special stress.

Dr. M.S. Randhawa inaugurating the course said intelligent fruit growers had been introducing improvements in quality for the last two thousand years i.e. long before horticulture became a modern science. The world-famous Chaunsa mangoes take their name from a village where this variety was first developed.

Speaking about recent developments, Dr Randhawa said the two most important events were the apple revolution in Himachal Pradesh and the grape revolution in southern India.

The Director of Research at PAU, Dr S.S. Johl, mentioned a piece of new research according to which if grape plants are starved of water before fruit setting they bear more heavily.

HAU starts agromet observatories

The newly created Department of Meteorology at Haryana Agricultural University (HAU) has established agro-meteorological observatories at its regional research stations at Karnal, Bawal and Kaul. Similar observatories will be established soon at Ambala and Jagadhari too.

Dr. O.P. Bishnoi, Associate Professor & Head of the Department disclosed that this net work of agromet observatories would help in providing the necessary data for advising the farmers in crop-weather forecasting and on day to day management of agricultural resources. A plan for weekly crop weather outlook report for advising the farmers on crop water management, agricultural operations, pest and disease control etc. is also being formulated. This information would be disseminated to farmers through the state.

The field research meteorological laboratory already existing at Hissar is being strengthened with more meteorological instruments for research on energy and water aspects in different crops. A sum of Rs. 1.50 lakhs has been sanctioned by ICAR for this purpose.

HAU meteorologists in the department would play a significant role in studies of interaction between meteorology and hydrological factors on the one hand and agriculture, horticulture, animal husbandry and forestry on the other.

Exhibition on insects

The Entomology Club of the University of Agricultural Sciences, Bangalore, organised an exhibition on insects with a theme "Facinating World of Insects" from June 25-27, 1982 at the Rotary Club, Bangalore. The exhibition attracted huge crowds from Bangalore and neighbouring areas. Groups of students from schools and colleges and farmers visited the exhibition. Important items which arrested the attention of the visitors were Honey bees, Silk worms, Lac insects, Household insects and useful insects in the life of man. The exhibits included models, live specimens, panels and blown up photographs.

The exhibition was inaugurated by Mr R.K. Baliga, President, Rotary Club of Bangalore on June 25, 1982. Dr K.A. Jalihal, Director of Extension of the University of Agricultural Sciences who presided over the function, also released a souvenir. He stressed the need and importance of collaboration of the University with voluntary agencies like

Rotary Club, Lions Club and such other organisations.

Earlier, Dr T.S. Thontadarya, Professor & Head, Department of Entomology, Agricultural College, Hebbal, Bangalore, welcomed the gathering and Miss Neelu Nangia, Secretary of the Club, proposed a vote of thanks.

A new rice variety

The G.B. Pant University of Agriculture & Technology has developed a new variety of rice which has also been released by the Uttar Pradesh Varietal Committee for Cultivation in the State.

The new variety named 'Govind' is semi dwarf and early maturing which performs well both under rain-fed direct sown and transplanted irrigated conditions. It is claimed to be highly resistant to bacteria blight and brown leafspot and can also withstand drought spell of 7 to 10 days during vegetative growth phase. Its yield is reported to be 50 quintals per hectare.

Guar workshop at HAU

In view of the importance of guar (Cluster beam) as a profitable and important industrial crop, the guar scientists have made a fervent plea that there should be a regular national coordinated research projects for intensifying the research work on this crop just as there are such projects on various other crops. Guar gum has recently acquired much significane. It is also a significant foreign exchange earning crop.

The scientists made this recommendation at a guar specialists meeting organised by the Department of Plant Brreeding, Haryana Agricultural University (HAU) recently. 25 guar specialists from all over the country attended the meeting to evaluate and discuss the results of kharif guar during the last year. Scientists lauded the achievements of HAU guar breeders for evolving three guar varieties namely HG-75, HG-82 for seed and HFG-119 for fodder.

Dr. R.S. Paroda, Professor & Head, Department of Plant Breeding released the recommendations of the guar scientists who have strongly recommended strengthening of guar research at the national level.

Science & Technology

Computer and mineral exploration

It is reported that the National Geophysical Research Institute at Hyderabad has developed fast computer software for application in the exploration of minerals Software in computing the response of underground targets of any shape under electromagnetic excitation.

The 5-year project titled "Techniques for expansion of mineral resources" was sponsored by the United Nations Development Programme with a grant of about a million U.S. dollars. The Government of India also paid a matching grant.

The object of the project was to provide better instrumentation, interpretation and analysis facilities in the search of minerals and ground water by geophysical surveys. This would help the mineral-based industries reduce the country's expenditure in foreign exchange and thus move closer towards the objective of self-sufficiency. Using the integral equation approach and applying the digital linear filters a speed of computation that surpassed all previous known techniques has been achieved, it is claimed, by the cost of geophysical surveys and would then be reduced better interpretation capabilities provided. It is further reported that some organisations in Australia and Canada have shown interest in acquiring some of these software developed in the project.

Iron-Ore processing investigated in Australia

Significant savings in iron ore processing could result from work being carried out in the University of Queensland's Department of Mining and Metallurgical Engineering in Australia.

The department's study of the high-temperature chemistry of metal extraction is being supported by large Australian mining companies.

The study aims to optimise the composition of iron oxides used to produce metallic iron. Research has already established that certain chemical elements could be added to the iron oxide compounds in the ore to increase the rate at which metallic iron was produced in the blast furnace. The research team hopes to develop a process in which these changes could be introduced early processing stages before the ore reached the blast furnace.

Dr. S.H. Algie, a member of the team, said iron and steel were by far the most widely used metallic materials in the world with production now exceeding 700 million tonnes a year. Despite the recycling of scrap iron most of the world supply came from iron ore which, in its untreated state, had physical and chemical properties unsuitable for the most efficient chemical processing.

Dr Algie said it was clear that with such large quantities of iron ore involved any improvement in the efficiency of treating it must lead to considerable savings in energy and in production costs.

Versatile rock breaker developed

A firm in the State of Tasmania has developed a mechanical rock breaker which removes the need for secondary processing in quarries when breaking down rocks for putting through a crusher.

The firm, Talisker Rock Breaker Services, developed the concept in 1977 when faced with large areas of stockpiled rocks too big to crush.

A partner in the firm, Mr Jack Bezette, said a 454-kg (1000-lb) donkey weight was encased in a 6.4m (21 ft) strengthened tubular steel frame fitted with a recoil sleeve to break the rocks. The donkey weight was operated from the front-end loader, to which the rock breaker was attached, by a wire cable.

Mr Bezette said the advantage of the rock breaker was the ease with which it would be fitted to any front-end loader when required to work alongside other machines at the quarry rock face, and because it had five times the striking power possible to achieve with hydraulic systems.

"The percussion rock breaker removes the need for secondary blasting when the rocks have to be drilled, filled with explosive and the quarry cleared of men," he said. "It also replaces special hydraulic breakers and drop-ball weights which are not always successful."

The $A30,000 machine, which can break up to 120 tonnes an hour depending on the type of rock, has been chosen as the Tasmanian invention to be entered in the national inventions workshop study scheme on innovation and entrepreneurship instigated by the Australian Department of Science and Technology.

News from Abroad

Scientists develop living pesticide in Australia

Scientists of the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) in Tasmania have developed a "living pesticide" which they hope will be applicable to a wide range of insect pests and reduce the number of chemical sprays now in use.

The insecticide spray, which contains tiny worm-like creatures called nematodes, already has been successfully used against a major insect pest in Tasmania's blackcurrant industry.

The scientists involved, Dr. Robin Bedding and Mr. Ray Akhurst, began their research in 1973.

Mr Akhurst said the nematodes occurred naturally in Australia soils. The water-based spray with environmentally harmless, but the nematodes destroyed the borer moths which plague the blackcurrant industry. The spray had already been used commercially for disinfecting cuttings for new blackcurrant plantations with almost 100 per cent success, but was still undergoing field esearch for use in existing areas. It had also been highly successful in the commercial treatment of the strawberry weavil, a pest common to nursery plants, particularly in the United States.

Mr Akhurst said the CSIRO hoped the spray could eventually be used on pests such as the sugar cane grub, the giant termite of tropical Australia and even the sheep blowfly.

The major obstacle was the high cost of mass-rearing of nematodes. But scientists had used meat wastes to rear the tiny creatures at a cost of two cents per million. The spray contains countless millions of them.

Nematodes themselves do not kill the insect pests but serve as a means of introducing bacteria into the insect gut, ensuring it dies within a few days.

[*Courtesy* : **Australian High Commission**]

Grain storage conference in Australia

An international symposium to examine the controlled-atmosphere storage of grain will take place in Perth, Western Australia, in April 1983.

The conference will mark the 50th anniversary of Cooperative Bulk Handling Limited, which is responsible for the storage and movement of grain harvested in Western Australia.

In the past five years there has been increasing emphasis by all Australian bulk-handling authorities on sealing stores for pest control, particularly as a means of reducing dependence on the use of grain protectants and improving the efficiency of fumigation practice.

Sealing has been an aim of the industry for more than 10 years. But it is only in the past five years that the method has been developed sufficiently to enable the sealing of the range of stores that occur within the central handling system.

The symposium will deal with the practical aspects of controlled atmosphere storage of grain to permit the use of inert atmosphere gases and fumigants.

This will be the second international symposium on the controlled-atmosphere storage of grain. The first, held in Italy, in 1980, concentrated on the theoretical aspects of controlled-atmosphere storage of grain.

[*Courtesy* : **Australian High Commission**]

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Sociology

1. Jain, Rajendra Kumar. Jhabua zile ke Bheelon ka ek samajshastriya adhyayan. University of Indore. Dr. K.P. Pothan, Head, Department of Sociology, Indore Christian College, Indore.

Economics

1. Agarwal, Vishnu Kumar. Uttar Pradesh mein keemten tatha nirvah vyaya; 1961-81. Meerut University.

2. Ajit, D. *Commercialization of agriculture in Kerala.* University of Kerala. Dr. P.R. Gopinathan, Nair, Lecturer, Government College, Attingal.

3. Bhela, Jodh Singh. Small savings in rural Punjab. Meerut University.

4. Bose, Chandra. Patterns of fertility and family planning behaviour in Meerut District. Meerut University.

5. Chitrath, Usha. Technology transfer and industrialisation in India. Meerut University.

6. Gurdev Singh. White revolution and its impact on rural economy of Punjab. Meerut University.

7. Joshi, Sudhakar Mahadeo. Growth and pattern of public expenditure of a state unit in Indian federation: A case study of Maharashtra 1961-62 to 1980-81. Shivaji University. Dr. J.F. Patil, Department of Economics, Shivaji University, Kolhapur.

8. Khatri, Shobha. Problems and prospects of engineering goods exports from India. Meerut University.

9. Madan Singh. Growth and working of agricultural implements industry in Haryana. Meerut University.

10. Raj Bala. *Industrial sickness in cotton textile mill* industry in U.P. Meerut University.

11. Sharma, Surendra Kumar. The problems and prospects of coastal shipping in India. Meerut University.

12. Som Prakash. The impact of technological changes on farm employments and incomes in District Saharanpur. Meerut University.

Education

1. Pathan, Naseem Mahmadkhan. A critical study of the causes responsible for the educational backwardness of the Muslim women and to suggest ways and means for improvement. Shivaji University. Dr. M.G. Mali, A.J.A. Mahavidyalaya, Gargoti, District Kolhapur.

HUMANITIES

Literature

English

1. Antony, A. The imagery in Hopkins' poetry. University of Kerala. Dr. Elias Valentine, Department of English, F.M.N. College, Quilon.

2. Sapre, Avinash Khanderao. The impact of British romanticism on Marathi poetry, 1874 to 1947: A comparative study. Shivaji University. Dr. C.J. Jahagirdar, Department of English, Shivaji University, Kolhapur.

Sanskrit

1. Hari Singh. Bhavbuti ke natakon mein darshanik, sanskritik evam samajik chetna. Panjab University. Prof. R.M. Sharma, Department of Sanskrit, Panjab University, Chandigarh.

Marathi

1. Kunte, Narendra Sadashiv. Ch. Y. Khanolkar: Kavi ani Kadambarikar: Ek chikitsik abhyas. Shivaji University. Dr. N.J. Phandkule, Head, Department of Marathi, Sangameshwar College, Solapur.

History

1. Chinnamma, M. Ayyankali and social revolutions among the backward classes of Travancore. University of Kerala. Dr. K.K. Kusuman, Department of History, University of Kerala, Trivandrum.

2. Mane, Maruti Nivrutti. Minority castes under the Maratha rule. Shivaji University. Dr. A.R. Bhosale, Department of History, Shivaji University, Kolhapur.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library Science

1. Arora, Ramesh Pal. Origin and development of periodical literature in English in India upto 1947: A survey. Panjab University.

Psychology

1. Abraham, A. Construction and standardisation of smell matching test and its usefulness in the diagnosis of right temporal lobe lesions. University of Madras.

2. Kundu, Nilanjana. Value pattern of college students and its relation to psycho social variables. University of Calcutta.

3. Nindru Bal Kaur. A study of certain personality and demographic correlates of sex-role attitudes amongst college female students. Panjab University.

Sociology

1. Jain, Sushila. Muslims and modernization: A study of their changing role structure and norms in an urban setting. University of Rajasthan.

2. Jayalakshmi, V. Nature of bureaucracy in hospital: A study of organization and administration of the Government General Hospital, Madras. University of Madras.

3. Ramchandani, G. Participative management in industrial organisations. University of Rajasthan.

4. Singh, Phunaan. Poorvi Uttar Pradesh mein jansankhya vridhi kee pravrity: Gorakhpur mandal ke vishesh sandarbh mein. University of Gorakhpur.

5. Srivastava, Rajendra Nath. *A social economic study* of the prostitutes of Gorakhpur (after the implementation of the Suppression of Immoral Traffic in Women and Girls Act 1956) *with a special reference to the problems of their rehabilitation.* University of Gorakhpur.

Social Anthropology

1. Govinda Reddy, P. *Social and biological aspects of* consanguineous marriages. University of Madras.

2. Radhakrishna Murthy, G. Mogaveeras: A study of the fisherman community. University of Mysore.

Political Science

1. Bakshi, Om Prakash. The 'decline of political theory' debate: An inquiry into the state of political theory in the 50s and 60s. University of Delhi.

2. Bharti, Yugal Kishore. Bharat kee gutt nirpekshta kee videsh niti evam Bharat-Soviet sandhi ka us per prabhav Ravishankar University.

3. Chidambaram, M. The politics of language in Tamil Nadu. University of Madras.

4. Ganesalingam, E. Trade unions and politics in Andhra Pradesh. Karnataka University

5. Hazarika, Bijay Bhushan. Political life in Assam during the nineteenth century. Gauhati University.

6. Krishnamurthy, C. Viresalingam: A study in socio-political thought and movement. University of Madras.

7. Mogli, G.D. Studies on patient medical records in hospital administration with special reference to Jipmer Hospital, Pondicherry. Sri Venkateswara University.

8. Padmanabhan, V K. Leftist politics in Tamil Nadu. University of Madras.

9. Patnaik Balakrishna An anatomy of the politics of floor-crossing in Orissa: A case study. Berhampur University.

10. Roy, Kiran Shanker. The political philosophy of Pandit Deendayal Upadhyaya. Magadh University.

11. Sebastian J. Lazar. Total revolution: The final phase of Jayaprakash Narayan's political philosophy. University of Madras.

12. Sharma, Vidhya Sagar. Sardar Vallabh Bhai Patel: A political study. University of Rajasthan

13. Singh, Baijnath Prasad. The amendment of the Indian constitution: Its legal and political implications Magadh University.

14. Singh Kailash Pati. The Samyukta Socialist Party. University of Gorakhpur.

Economics

1. Majumdar, Shyama Prasad. Farm financing of small farmers: A study on Jalpaiguri District, 1975-78. North Bengal University.

2. Nancy Stella Bai, C. An economic analysis of low income group public housing in Madras city. University of Madras.

3. Radhakrishna B.G. Gandhian economic thought and economic planning in India. University of Mysore.

4. Rajkumar, R. Household savings: Patterns, determinants and motivations. University of Madras.

5. Ramadass, M. Demand for and productivity of farm credit in Pondicherry region: An economic appraisal. University of Madras

6. Ravindranath, K.V. Profitability of public sector banks in India: An econometric analysis. University of Mysore.

7. Renukarya, C.K. State participation in cooperation with particular reference to Karnataka. University of Mysore.

8. Vaidya, Vijay Murlidhar. A study of the textile industry in Vidarbha since 1960. Nagpur University.

Public Administration

1. Kaushik, Sham Lal. Leadership in urban governments in Punjab. Punjabi University.

Education

1. Amrit Kaur. A critical study of the educational philosophy of the Sikh gurus. Punjab University.

2. Ghorai, Indu. The new curriculum of secondary education in West Bengal in the light of curricular history. University of Calcutta

3. Jacob, F. Ethel Selina. Teaching effectiveness and student evaluation of teaching. University of Madras.

4. Nagalakshmi, Balasulapalem. A study of perceived parental behaviour and the level of academic motivation of 9th class students. Andhra University.

5. Narendra Singh. A study of the administrative problems of affiliated colleges. M.S. University of Baroda.

6. Oberoi, Neena. Development and evaluation of radiovision as an instructional system. South Gujarat University.

7. Rajasekaran, V. Educational philosophy of the ancient Tamils of the Sangam Period B.C. 300-A.D. 300. University of Madras.

8. Vathsala, S. Potential dropouts at middle school level. University of Madras.

9. Zachariah, Santhamma. Fantasy life of adolescent girls and its influence on educational achievement. University of Kerala.

Commerce

1. Chida, Asif Raza. Accountability of public sector enterprises in Tamil Nadu. University of Madras.

2. Garg, Hem Raj. Direct taxes machinery in India: A critical evaluation. Punjabi University.

3. Gupta, Ram Swarup. Private corporate sector in Punjab: A study into its financial operations. Panjab University.

4. Shammugasundaram, S. Weavers' co-operative societies in Coimbatore District: A study of utilization by members. University of Madras.

Home Science

1. Chaturvedi, Vijayshree. Impact of mercury toxicity on protein, lipid and vitamin status of albino rats. S.N.D.T., Women's University Bombay.

HUMANITIES

Philosophy

1 Chakrabarti, Prabhabati. Jean-Paul Sartre's philosophy of humanism: A critical survey. University of Calcutta.

2. Gopalan, S. Studies in social philosophy. **D Litt.** University of Madras.

3. Jagatiswari, D. Advaita vedanta of Kaivalya-Navaneetam. University of Madras.

4. Kamdee, Duan The ethical philosophy of Buddhism Magadh University.

5. Karunakaran, S. A critical study of the two level-analysis of Plato, Sankara and Kant. University of Madras.

6. Lakshmanan, S. Gandhi and Marx: A comparative study of their socio-political philosophies. University of Madras.

Linguistics

1. Chaudhuri, Shubha. Deviance and perception of grammaticality. Jawaharlal Nehru University.

2. Sekhon, Gurkirpal Singh. A contrastive study of the verb phrase in Punjabi and English. Punjabi University.

Literature

English

1. Bhatta, S. Krishna, Indo-Anglian drama: A critical study. Karnataka University.

2. Koul, B N. A critical study of the fundamental curricular issues relevant to the teaching of English in India leading to an alternative integrated ELT curriculum Central Institute of English and Foreign Languages, Hyderabad.

3. Krishna, F.E. Rudyard Kipling: The Anglo-Indian world of his novels. University of Rajasthan.

Sanskrit

1. Amaladass, A. The philosophical implications of dhvani. University of Madras.

2. Chaudhary Krishna. Forest and forest life as noticed in the Pali tripitaka. Magadh University.

3. Goswami, Usha. Bhavbhooti ke natakiye patron ka manovaigyanik adhyayan. University of Rajasthan.

4. Halder, Sahadev. Sadanander vedantasar samiksha. Rabindra Bharati University.

5. Joshi, Pramod Shankar. Rupagoswami and his dramatic works: A critical study. Punjabi University.

6. Pathak, Kishorchandra Bhanushankar. Ashtadhyayi of Panini: A topic-wise analytical study. M.S. University of Baroda.

7. Singh, Gopal Sharan. Both sadhna, udbhav, vikas aur swarup: Pali tripitik se le kar Buddh dhosh kal tak. Magadh University.

8. Snehi, Ram Pal. Athravavediye anshadhion evam vanaspatiyon ka abhigyan. University of Rajasthan.

Pali

1. Das, Siddhartha. Studies in Tibetan Buddhism. University of Calcutta.

Punjabi

1. Basi, Tarlochan Singh. Punjabi novel da manovyganic adhyayan, 1947-75. Punjabi University.

2. Gurmukh Singh. Contribution of Sewapanthis to Panjabi literature. Panjab University.

3. Ram Singh. Editing to the bani of Bava Maru Dass with a critical introduction. Panjab University.

4. Surinder Kaur. Punjabi navel vich chritar chitran 1900-1970. Punjabi University.

5. Usha Rani. Baba Budh Singh rachit Punjabi sahit da alochnatmak vivechan. Punjabi University.

Hindi

1. Awasthi, Kamalnarayan Debishaya. Bhagwati Prasad Bajpayi ka upanyas sahitya: Shilp vidhan evam chintan. Nagpur University.

2. Chandra Sekhar Reddy, I.N. Swatantryottar Hindi vyangya sahitya. Sri Venkateswara University.

3. Harbans Lal. Gurmukhi lipi mein uplabdh Hindi shatak kavyon ka samikhatmak adhyayan. Punjabi University.

4. Hari Singh. Kavi Jaswant Singh aur unka kavya. University of Rajasthan.

5. Jha, Vimaleshwar. Hindi aur Bajjika kee vyakarnik ketiyon ka tulnatmak adhyayan. University of Bihar.

6. Narain Dutt. Swatantrata purav Hindi upanayason mein gram-chitran. Punjabi University.

7. Patel, Mohammed Jaffar. Bachchan : Jeevan aur kavya. Karnatak University.

8. Pauhar, Ajitsingh Dalranjansingh. Korku lok geeton ka sahityak adhyayan. Nagpur University.

9. Rastogi, Reena. Bhagvati Charan Verma ke katha sahitya mein yugchetna. Osmania University.

10. Seshan, M. A comparative study of the historical novels of Vrindavanlal Varma and Kalki. University of Madras.

11. Shahi, Anil Kumar. Nirala ke kavya mein kalaon ke antersambandh. University of Gorakhpur.

12. Shaik Abdul Khader. Neo-realism in the post-sixty Hindi-Urdu short stories: A comparative study. University of Madras.

13. Tiwari, Shanker Lal. Sant sahitya kee paribhashik shabdawali. University of Delhi.

14. Usha Rani. Punjab ke madhya kalin nirgun sant sahitya mein samajik chetna: Kewal gurbani ke sandarbh mein. Punjabi University.

15. Verma, Saroj. Swargiye Madhavrao Sapre evam chhatisgarh ke anya samkaleen sahitkaron kee den. Ravishankar University.

16. Vora, Premalata Mohanlalji. Rajendra Yadav ke vyaktitv evam krititv ka anusheelan. Nagpur University.

17. Vyas, Ramsukh. Chhayavadottar kavya mein nari chitran: Kavivar Dinkar, Bachchan, Pant aur Narendra Sharma ke vishesh sandarbh mein. University of Rajasthan.

Urdu

1. Mohammed Abdul Hafeez. A critical survey of the Urdu poems of Iqbal. University of Madras.

2. Sultana, Malka Khurshid. Moral and ethical element in Urdu masnavis. University of Madras.

Marathi

1. Kanade, Shakuntala. Shri Giridharswami: A critical study. S.N.D.T. Women's University, Bombay.

Persian

1. Naqvi, Syed Zakir Hussain. Concept of human pesonality according to Roomi's masnavi. Punjabi University.

Tamil

1. Arumugam, N. A critical study of Kalittoka. University of Madras.

2. Valliammal, S. The part played by Lord Krishna in Villi Bharatham. University of Madras.

Kannada

1. Bhatta, S.V. Mallikarjuna. Kannadadalli nalacharitregalu. University of Mysore.

Telugu

1. Gopalakrishna Rao, T. Ramayana as depicted in the folk poetry of Telugu and Kannada. University of Mysore.

2. Selvarajan, S. A critique on Sarangadhara charitra of Chemakura Venkata Kavi. University of Madras.

3. Shanmuga Pillai, K. A critical study of Keyurabahu charitra of Manchana. University of Madras.

4. Vijaya Lakshmi, A. Women in Telugu folklore. Nagarjuna University.

Geography

1. Dubey, Kailash Nath. Regional disparities in the levels of socio-economic development in an Indian state: A case study of Uttar Pradesh. Panjab University.

2. Ramaswami, G. Bus services in Tamil Nadu: A geographical analysis. University of Madras.

3. Singh, Prabhu Shanker. Changes in land use pattern of Piprauli Block (Distt. Gorakhpur) since independence. University of Gorakhpur.

4. Singh, Rajkumar Ranjan. The pattern of land use in the Manipur valley: A geographical analysis. Gauhati University.

History

1. Deb, Bimal Jyoti. Congress leadership and parliamentary politics of Assam, 1937-1947. Gauhati University.

2. Ghosh, Mitra. Functional classification and hierarchy of settlements in North Bengal. North Bengal University.

3. Hangloo, Rattan Lal. Rural economy of Kashmir, 1846-1900 A.D. Jawaharlal Nehru University.

4. Hebsur, Vidya Mohanrao. The religious conditions during the Hoysala period. Karnatak University.

5. Nagamamba, Eranki. A history of the Pusapatis 1652-1794. Andhra University.

6. Syed Shaukat Ali. Civil service in ancient India from vedic age upto 650 A.D. Magadh University.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in AIU Library during July, 1982

EDUCATIONAL PHILOSOPHY

Botkin, J.W. and others. "Universities and the solution of human problems." *International Association of Universities Bulletin* 29 (3); Aug 81:

Gaff, Jerry. "Reconstructing General Education: Lessons from Project GEM." *Change* 13(6); Sept 81 : 52-8.

EDUCATIONAL PSYCHOLOGY

Fuller, Bruce, and others. "The organisational context of individual efficacy." *Review of Educational Research.* 52(1); Spring 82: 7-30.

Kakkar, S.B. "Teacher behaviour and student characteristics." *Indian Educational Review* 17(1); Jan 82: 71-9.

Lompscher, Joachim. "Personality development and the pedagogical organization of pupils activities." *Prospects* 12(1); 1982: 29-42.

Nucci, Larry P. "Conceptual development in the moral and conventional domains : Implications for values education." *Review of Educational Research* 52(1); Spring 82 : 93-122.

Pinillos, Jose Luis. "The modification of intelligence." *Prospects* 12(1); 1982 : 5-17.

EDUCATIONAL SOCIOLOGY

Eide, Ingrid "Thoughts on the democratization of education in Europe." *Prospects* 12(1); Spring 82: 79-88.

Wilkerson, Margaret B. "The marks of meritocracy and egalitarianism." *Educational Record* 63 (1); Winter 82 : 4-11.

Wilson, John. "The credibility of educational studies." *Oxford Review of Education* 8(1); 1982 : 3-19.

EDUCATIONAL ADMINISTRATION

Blyn, Martin R. and Zoernes, C.E. "The origins of the upcoming crisis in the management of academia. *Change* 14(2); Mar 82 : 21-5, 60.

Howell, Barbara. "The costs (and benefits) of faculty participation." *Academe* 68(1); Jan-Feb 82 : 4A-6A.

Tucker, Allan and Mautz, Robert B. "Academic freedom tenure and incompetence." *Educational Record* 63(2); Spring 82 : 22-5.

CURRICULUM

Malitza, Mircea. "Coming changes in science and the curricula." *Prospects* 12(1); Spring 82 : 89-100.

Ragavendra Rao, K. "Teaching and research in Political Science in South Indian Universities. *Bulletin Madras Development Seminar Series* 12 (5&6); May-June 82 : 309-17.

TEACHING

Evans, Odette L'Henry. Anatomy of a tutorial (Or when is a tutorial not a tutorial). *Teaching at a Distance* (21); Summer 82 : 71-5.

Reid, Margaret and others. "Mixed ability teaching : Problems and possibilities." *Educational Research* 24(1); Nov 81 : 3-10.

EDUCATIONAL TECHNOLOGY

Botkins, James W. "Innovative learning, micro-electronics and intution." *Prospects* 12(1); 1982 : 19-27.

EVALUATION

Astin, Alexander W. "Why not try some new ways of measuring quality?" *Educational Record* 63(2); Spring 82 10-15.

Blumberg, Phyllis, and others. "Should taxonomic levels be considered in developing examinations." *Educational and Psychological Measurement* 42(1); Spring 82 : 1-7.

Chanda, S.M. Assessing teacher's ability. *University News* 20(11); 1 June 82 : 371.

Edwards, Dee. "Project marking : Some problems and issues." *Teaching at a Distance* (21); Summer 82 : 28-35.

Francis, J.C. Profile reporting in external examinations. *EducationalResearch* 24(1); Nov 81 : 55-61.

Levine, Lawrence M. and Bohrnstedt, Gerorge W. "New developments in the assessment of reliability; The Linrel Program." *Educational and Psychological Measurement* 42(1); Spring 82 : 195-9.

Lyman, Howard B. "Metrics used in reporting test results." *New Directions for Testing and Measurement* (6); 1980: 17-34.

McBean, Edward A. and Al-Nassri, Sabah. "Questionnaire design for student measurement of teaching effectiveness." *Higher Education* 11(3); May 82; 273-88.

Terenzini, Patrick T., and others. "A conceptual and methodological approach to the identification of peer institutions." *Research in Higher Education* 12(4); 1980-347-64.

ECONOMICS OF EDUCATION

Eicher, Jean-Claude. "What resources for education." *Prospects* 12(1); Spring 82 ; 57-68.

Renukarya, C.K. and Veeraprasad, T.M. "Outlay on education :Need for a pragmatic policy." *University News* 20 (10); 15 May 82 ; 336-7.

Tilak, Jandhyala, B.G. "Educational planning and the international economic order." *Comparative Education* 18(2); 1982 : 107-21.

SCIENCE EDUCATION

Parmaji, S. and Sudhakar, V. "The philosophy of inter-disciplinary approach in science education." *Indian Education* 12 (1&2); Apr-May 82 : 23-6.

ADULT EDUCATION

Atkinson, Maurice. "Fund raising for continuing education." *New Directions for Continuing Education* (12); 1981 : 115-22.

Fordham, Paul. "The impediments to change in continuing education." *Times Higher Education Supplement* (504); 2 July 82 : 12.

LITERACY FOR all by the year 2000 : The Udaipur Literacy Declaration." *Convergence* 14(4); 1981 : 7-9.

Rumble, Greville. "Open correspondence Institute India." *Indian Education* 12(1 & 2); Apr-May 82 ; 36-40.

Schuyer, E.H. "The Open University in the Netherlands." *Higher Education and Research in Netherlands* 25(1/2); Winter-Spring 81 : 3-11.

Wedemeyer, Charles A. "The birth of the Open University—a postscript." *Teaching at a Distance* (21); Summer 82 : 21-7.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Adinarayana, P. "Innovations and experiments in education in Andhra Pradesh." *Indian Education* 12(1&2); Apr-May 1982 : 13-16.

Dreier, Oleg K. Problems facing the developing countries : An eastern Euro-view. *Prospects* 12(1); 82 : 69-77.

Williams, Bruce. "Income-elastic supply and demand." *Times Higher Education Supplement* (502); 18 June 82 : 14-15.

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Name of the Department 1	No. of posts 2	Reservation position 3
Department of Architecture		
Professor	1	Scheduled Caste
Reader	4	Scheduled Caste
Lecturer	5	Scheduled Caste
University Law College		
Professor	1	Scheduled Caste
Lecturer	4	Scheduled Caste—3 Scheduled Tribe—1

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An eminent scholar with published work of high quality actively engaged in research, Ten years of experience in teaching/research/professional work.

OR

An outstanding architect with established reputation who has made significant contribution to knowledge.

Readers in the Department of Architecture

B-Arch with 7 years experience in teaching/research/professional work.

OR

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Bachelor's degree in Architecture plus two years of relevent professional experience.

OR

Master's degree in architecture and one year's relevant professional experience.

Provided further that if a candidate does not possess a master's degree in architecture and professional experience or a person possessing experience is not found suitable, the person appointed wlll be required to obtain the desired professional experience within a period of eight years on his appointment failing which he will not be able to earn future increment until he fulfils this requirement.

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A first class Master's Degree in law of a recognised University with 5 years teaching/professional experience.

OR

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Qualification for the post of Lecturer in the University Law College

(a) LL.M. Degree and

(b) Good academic record with atleast second class (C in the seven point scale) Master's degree from an Indian University in a relevant subject or equivalent degree from a foreign University.

If the Board of Appointment is of the view that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard, it may relax the qualifications prescribed in (b) above.

GENERAL

The prescribed application forms in seven sets can be had from the Registrar, Bangalore University, Central College Premises, Bangalore-560 001 on payment of **Rs. 25/- for** the posts of Professors and Readers and **Rs. 20/-** for the posts of Lecturers. The amount may be paid in the office of the Finance Officer, Bangalore University, Bangalore or through crossed Postal Order/s payable to the Registrar, Bangalore University Bangalore. No other form of remittance towards application fee will be accepted. The requisition for supply of application forms must be accompanied with a self addressed envelope of size 6" x 12" duly stamped with **Rs. 3.85** worth of postal stamps. *Requisition received without self addressed envelope and required postal stamps will be rejected.*

Seven copies of apolications giving all the required particulars alongwith the attested certificates in respect of qualifications, date of birth, teaching and professional/research experience and atleast two testimonials, one of which should be from the Head of the Institution if any where the applicant is now serving or served last, should be attached to the applications and sent to the Registrar, Bangalore University, Central College Premises, Bangalore-560 001, on or before **10th August 1982**. Copies of publications, if any, in 7 sets may be enclosed to the application forms. Applications received without true copies of marks cards, degree certificates and other certificates will not be considered.

Candidates who have appeared for examination and awaiting results as on the last date of receipt of application in the University need not apply.

Those who are in employment should send their application through their present employer so as to reach this office on or before the last date fixed Applications received after the due date are subject to acceptance or rejection at the discretion of the University.

Canvassing directly or indirectly would disqualify the candidate.

The candidates selected for appointment in the University are required to execute a contract of service as required under the rules. The appointment is usually tenably for a period of five years in the first instance but is renewable at the discretion of the University.

The candidates who have already applied for the post of Professor, Readers and Lecturers in the Department of Architecture in response to Notification No. Est. T.P. ADVT. 1.80 dated **2.7.80** need not apply now. However, they may furnish additional qualifications, teaching/professional experience, if any acquired subsequently with supporting documents.

Reservation of vacancies for Scheduled Castes/Scheduled Tribes and other Backward Classes (Backward Communities / Backward Castes/Backward Tribes and Special Group) will be made for each category of posts in the University as per orders of the Government of Karnataka

If the candidates belonging to Scheduled Castes suitable for appointment are not available for being selected for vacancies reserved for such castes, such vacancies will be filled by selection of candidates belonging to Backward Communities, Backward Special Groups and Backward Castes in the ratio of 2:2.1 respectively. If candidates belonging to Scheduled Tribes suitable for appointment are not available for being selected for vacancies reserved for such tribes, such vacancies will be filled by selection of candidates belonging to Backward Tribes. If adequate number of suitable candidates belonging to Backward Communities, Backward Special Group, Backward Castes and Backward Tribes are not available for being selected for vacancies reserved for those categories as well as for SC & ST such vacancies will be filled by selection of candidates on the basis of General Merit as per

Orders of the Government. The candidates belonging to Scheduled Castes/Scheduled Tribes/Backward Communities/Backward Castes/Backward Tribes and Special Groups are required to produce the certificates in the prescribed form.

Applicants who have completed 60 years of age as on the date of this notification need not apply.

Incomplete applications are liable to be rejected.

The number of posts specified above is subject to variation depending upon the needs of the University.

It is open to the University to fill or not to fill any of the posts now advertised.

Application fees once remitted is not refundable under any circumstances.

Separate applications are required to be submitted for each post. One application cannot be considered for more than a post.

No TA/DA will be admissible either for attending the interview or for joining the post, if selected.

REGISTRAR

UNIVERSITY OF POONA

GANESHKHIND, PUNE-7

Application in prescribed form are invited for following posts on or before 12th August, 1982.

1. **Professors**
   Microbiology (1).
2. **Readers**
   Defence Studies (1), Physics (Temp. post) (1).
3. **Lecturers**
   Physics (2—1 is temp.), Bio-Chemistry (2 temp. posts), Physical Chemistry (1), Geography (1), Philosophy—Nyaya Pandit (1).

General Qualifications

1. **Professor**
   Must be scholar of eminence, have to his credit research work of independent merit, possess fairly long experience of teaching of Post-graduate Classes and guiding advance research in the respective subjects.
2. **Reader**
   Must possess fairly long experience of teaching of Post-graduate classes and guiding research in the respective subjects.
3. **Lecturer**
   (i) Must have a Doctor's Degree or published work of an equally high standard and
   (ii) Consistently good academic record with First or High Second Class (B+) at Master's Degree in a relevant subject or an equivalent Degree of a foreign University.

   If the Research work of a candidate as evident from his thesis or from his published work is of a very high standard Selection Committee may relax any of the qualifications prescribed.

Minimum Qualifications

1. **Professor**
   As prescribed by the University for recognition as Post-graduate teacher (by research)
   (i) (a) A first or second class Master's degree or a Master's Degree by research OR (b) A first or Second class Bachelor's degree, with a Master's degree in a subject in which the same is not awarded with class; OR (c) A Doctor's degree with at least second class Bachelor's degree OR (d) Any other equivalent degree or degrees of Indian or Foreign University.
   (ii) (a) Five years' experience of teaching Honours or equivalent courses in Degree classes and some published independent research work; OR (b) published independent research work other than work done for Ph.D. Degree, of acknowledged merit.

2 & 3 **Reader and Lecturer**

As prescribed by the University for recognition as Post-graduate Teacher (By papers).

Ordinarily as follows : Viz : either those under I (i) and (ii) or those under II.

I. (i) (a) first or second class master's degree or master's degree by research; OR (b) first or second class bachelor's degree with master's degree in a subject in which it is not awarded with classes OR (c) doctor's degree with at least second class bachelor's degree; OR (d) any other equivalent degree or degrees of Indian or Foreign University; AND
   (ii) (a) Five year's experience of teaching Post-Intermediate Classes OR (b) some published independent research work.

II. A doctor's degree with a second class master's degree or the master's degree by research in the subject.

1. **Professor of Microbiology**

A. M.Sc. Ph.D. with good academic record.

B. Eminent scholar with published work of high quality, actively engaged in research. Fairly long experience of teaching and/or research experience of guiding research at doctoral level.

OR

Outstanding scholar with established reputation having made significant contribution to knowledge.

Specialization

Industrial Microbiology/Microbial genetics Microbial Physiology and Biochemistry.

2. **Reader in Defence Studies**

Qualifications Essential

M.A. Degree in Defence studies or Economics. Those with M.A. degree in History or Political Science may also apply. Candidate should be conversant with Defence Plans, Polities, Programmes, Expenditures and Production in India, important neighbouring countries, advanced western countries and super powers, with international relations strategic developments and with important military campaigns. Minimum five years teaching experience at Post-graduate level with proven ability to guide research students. Age limit 50 years.

Desirable

Ph.D. degree in Defence Studies or publications relating to defence matters. A law degree, knowledge of Marathi, Graduates from Defence Services Staff College and/or National Defence College, Military combat experience, Staff appointments at Army/Naval/Air Headquarters/inter Services Organisation/Ministry of Defence involving formulation/execution of Defence Plans.

3. **Reader in Physics**

(One temp. post)
Experience in the field of surface Physics and some experience in the programmes connected with the utilisation of Solar Energy.

4. **Two Lecturers in Physics**

(One post is temporary)
(1) Long experience in Microprocessor and Electronics. Experience in development of electronic instruments for research in material Studies.
(2) Theoretical experience in materials studies. Experience in Magnetic materials will be preferred.

5. **Two Lecturers in Bio-Chemistry**

(Temp. posts)

a. **Qualifications essential**
Doctorate degree in Biochemistry or research work of equally high standard. Good academic record with at least II Class (C in the 7 point scale) Masters degree in Biochemistry from Indian University or equivalent degree from foreign University.

b. **Specialisation**
Any one of the following:
1. enzymology and nucleic acids.
2. food nutrition.
3. clinical Biochemistry.
4. Experience in advanced Biochemical Techniques such as affinity chromatography, gel electrophoresis, gel filtration etc.
4. Blood coagulation proteins and Enzymes of clinical significance.

6. **Lecturer in Physical Chemistry**

Qualifications essential

M.Sc. with first class or higher Second class (B+), Masters degree in Physical Chemistry or equivalent degree of foreign University.

Qualification desirable

Doctor's degree/published work of high standard.

Specialization

Chemical Kinetics

7. **Lecturer in Geography:**

Qualification essential

Specialization in Economic Geography.

8. **Lecturer in Nyaya Pandit** in Philosophy Department (Reserved for SC/ST/NT & VJ)

Qualifications Essential

1. Must have passed some examination/s in study of Indian logic. e.g. Nyaya Logic.
2. Must have studied original works on Nyaya Logic Pracina and/or Navya Nyaya.
3. Must have capacity to teach and interpret original works on Indian Logic-Nyaya/Buddhist/Jain Logic.

Qualifications desirable

1. Some published work.
2. A good scholar of the subject.

Scales of Pay

Professor

Rs. 15000-60 1800-100-2000-125/2-2500.

Reader

Rs. 1200-50-1300-60-1900.

Lecturer

Rs. 700-40-1100-50-1600.

Plus allowances admissible under University rules.

Upper Age Limit

Professors 50 years, Readers 45 years and Lecturers 35 years.

The prescribed set of application forms is available on request accompanied by (1) a self addressed envelope (21 cm x 10 cm) bearing postal stamps worth **Rs. 230**/- for postage, and (2) a postal order of Rs. TEN drawn in the name of the Registrar, separately for each post or personally on payment of Rs. TEN in cash in the University Office. The applicant asking for set of applications, must specify (i) the name and (ii) the serial number of the post he wants to apply.

(Note: 1. Candidate belonging to reserved category should produce a caste certificate to that effect from the Magistrate/Notary; specifying clearly the name of community to which he belongs.

2. One who is already employed must submit his application through the proper channel.

3. Some of the conditions may be relaxed in exceptionally capable candidate.)

In case of open posts also other things being equal preference will be given to candidates belonging to Scheduled Castes, Scheduled Tribes and Nomadic Tribes and Vimukta Jatis.

Ganeshkhind. Pune-7.

S.P. Bhosale
REGISTRAR

KONKAN KRISHI VIDYAPEETH

DAPOLI DIST. RATNAGIRI

Advt. No.EST/A-I/Advt./XXII/974

Dated the 16th July, 1982

Applications in the prescribed form are invited for the undermentioned posts. Application forms can be obtained from the office of the Registrar, Konkan Krishi Vidyapeeth, Dapoli. (Pin Code-415 712), Dist. Ratnagiri, Maharashtra State on sending a self-addressed envelope (10 x 23 cms.) with affixed postage stamps of **70 paise** and a crossed Indian Postal Order of **Re. 1/- (Rupee one only)** payable to the Comptroller. Konkan Krishi Vidyapeeth, Dapoli (415 712), Dist. Ratnagiri. Completed applications accompanied by a crossed Indian Postal Order worth **Rs. 5/- (Rupees Five only)** payable to the Comptroller, Konkan Krishi Vidyapeeth, Dapoli Dist. Ratnagiri, Maharashtra State should reach this office not later than **23.8.1982.** Government servants and the staff working under the local bodies should necessarily apply through proper channel and their applications should reach this office through their Employer not later than **8-9-1982.** Applications received after the due date will not be considered. A separate application with separate fee is required for each post.

(I) Faculty of Agriculture

1. Assistant Professor of Statistics One post
2. Assistant Professor of Veterinary Science Two posts (one is reserved for S.C./S.T./D.T. & N.T.)
3. Assistant Professor of Agril. Economics One post (Reserved for S.C./S.T./T.D & N.T.)
4. Assistant Professor of Agril. Entomology One post *(Reserved for S.C./S.T./D.T. & N.T.)*
5. Bio-Chemist One post
6. Junior Agronomist One post
7. Junior Horticulturist One post
8. Junior Plant Pathologist One post

INDIAN COUNCIL OF AGRICULTURAL RESEARCH SCHEMES

(A) Co-ordinated scheme for Research on Water Management

9. Junior Scientist (Agril Engineering) One post
10. Junior Scientist (Statistics) One post

(B) All-India Co-ordinated Rice Improvement Project

11. *Junior Pathologist* One post

(C) All India Co-ordinated Fruit Improvement Project on Mango Crops

12. Junior Plant Physiologist One post

(D) National Demonstration Scheme

13. Plant Protection Officer One post

(II) FACULTY OF VETERINARY SCIENCE

14. Assistant Professor of Pharmacology One post (Reserved for S.C./S.T./D.T.&N.T.)
15. Assistant Professor of Pathology Two posts (one is reserved for S.C./S.T./D.T.&N.T.)
16. Assistant Professor of Bacteriology One post (Reserved for S.C./S.T./D.T.&N.T)
17. Pathologist One post
18. Assistant Professor of Anatomy One post
19. Assistant Professor of Animal Husbandry One post
20. Assistant Professor of Food Hygiene and Public Health One post
21. Assistant Professor of Extension One post
22. Assistant Professor of Dairy Science One post

(III) FACULTY OF FISHERIES

23. Associate Professor of Fisheries Technology One post
24. Assistant Professor of Fisheries Engineering Two posts
25. Assistant Professor of Fisheries Resources Economics and Statistics Two posts (one is reserved for S.C./S.T./D.T.& N.T.)
26. Assistant Professor of Fisheries Biology One post
27. Assistant Professor of Aquaculture One post
28. Assistant Professor of Fisheries Technology Two posts (one post is reserved for S.C./S.T./D.T. & N.T.)
29. Assistant Research Officer One post

PAY SCALES

1. For the post at Sr. No. 23
   Rs. 1200-50 1300-60-1900
2. For the posts at Sr. No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28 and 29.
   Rs. 700-40-1100-50-1600
3. *For the post at Sr. No. 17*
   Rs. 680-40-1000-50-1250
4. For the post at Sr. No. 13
   Rs. 700-40-1100-50-1300

QUALIFICATIONS

1. **For the post at Sr. No. 23**

ESSENTIAL

After Ph.D. in Fisheries Science/Zoology/Marine Biology, with a thesis on Marine Biological or Fisheries Problems, two years' experience in teaching or research in the Fisheries Science and/or Marine Biology as evidenced by the published research papers or in Extension Education.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, five years' experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in Extension Education.

OR

Master's degree in Fisheries Science/Zoology/Marine Biology, with ten year's total experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

DESIRABLE

Experience in Fisheries Technology.

2. **For the posts at Sr. No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 and 22.**

Ph.D. in the respective subject.

OR

After Master's degree in the respective subject, two years' experience in teaching or research as evidenced by published research papers or in extension education.

OR

Master's degree in the respective subject, with a first class or equivalent C.G.P.A. either at Bachelor's degree or Master's degree level.

NOTE

- (i) For the posts at Sr. No. 2, the respective subject means Ph.D./Master's degree in any Branch of Veterinary Science.
- (ii) For the post at Sr. No. 13, the respective subject is Plant Pathology/Entomology.
- (iii) For the post at Sr. No. 17, the respective subject is Veterinary Pathology/Bacteriology/Parasitology.
- (iv) For the post at Sr. No. 18, the respective subject is Veterinary Anatomy.
- (v) For the post at Sr. No. 21, a basic degree in Veterinary Science or Agriculture or Dairying is essential. Other things being equal, a graduate in Veterinary Science will be preferred.

3. For the post at Sr. No. 9.

ESSENTIAL

B.Sc. (Agril. Engg.)/B. Tech. (Agril. Engg) or M.Sc. (Agri.) in Agril. Engineering of any recognised University at least in Second Class.

PREFERABLE

- (i) M. Tech. in Agricultural Engineering.
- (ii) Basic degree in Agriculture.

4. For the post at Sr. No. 20

Ph.D. in the subject of (1) Food Hygiene and Public Health or (2) Meat Inspection.

OR

After Master's degree in the subject of (1) Food Hygiene and Public Health, or (2) Meat Inspection, or (3) Veterinary Pathology, or (4) Veterinary Parasitology, or ( ) Veterinary Bacteriology.

AND

Two year's experience in teaching or research as evidenced by published research papers or in extension education.

OR

M.V.Sc. with First Class or equivalent C.G.P.A. either at Bachelor's degree or Master's degree level in (1) Food Hygiene and Public Health or (2) Meat Inspection or (3) Veterinary Pathology or (4) Veterinary Parasitology or (5) Veterinary Bacteriology.

5. For the posts at Sr. No. 24, 25, 26, 27, 28 and 29

Ph.D. in Fisheries Science/Zoology/Marine Biology, with thesis of Fisheries or Marine Biological Problems.

OR

After Master's degree in Fisheries Science/Zoology/Marine Biology, two years' experience in teaching or research in Fisheries Science and/or Marine Biology as evidenced by published research papers or in extension education.

OR

Master's degree in Fisheries Science/Zoology/Marine Biology, with a First Class or equivalent C.G.P.A. either at Bachelor's degree or Master's degree level.

DESIRABLE

- (i) For the post at Sr. No. 24, experience in Fisheries Engineering is desirable.
- (ii) For the post at Sr. No. 25, experience in Fieheries Resource Economics and Statistics is desirable.
- (iii) For the post at Sr. No. 26, experience in Fisheries Biology is desirable.
- (iv) For the post at Sr. No. 27, experience in Fisheries Aquaculture is desirable.
- (v) For the post at Sr. No. 28, experience in Fisheries Technology is desirable.

NOTE

1. Maximum age-limit as on **23-8-1982** will ordinarily be 40 years for posts at Sr. No. 23 and 50 years for remaining posts. Maximum age-limit is relaxable upto 5 years, in deserving cases at the discretion of the University. The age-limit is not applicable to persons already employed in this University.
2. Age relaxation for candidates belonging to S.C./S.T./D.T.& N.T. O.B.C. will be as per the State Government Rules.
3. The pay scales of the above posts carry allowances admissible as per the rules of the University.
4. If response from highly qualified and more experienced candidates is adequate, those with less qualifications or experience may not be called for interview eventhough they fulfil the minimum qualifications for the post.
5. The fact that the posts are advertised does not mean that all the posts will be filled-in.
6. The posts at Sr. No. 9, 10, 11, 12 and 13 are sanctioned by the Indian Council of Agricultural Research for limited period.
7. The number of posts may be increased or decreased.
8. Selected candidates can be posted or transferred at any of the Campuses/Centres under the jurisdiction of the University.
9. Nomenclature of the posts can be changed by the University as and when need arises.
10. Incomplete applications and applications received after the last date shall not be taken into consideration.
11. The applicants should satisfy all the requirements such as qualifications, experience on or before 23-8-1982.
12. Mere eligibility does not vest any right on the candidate for being called for the interview.

CANVASSING IN ANY FORM WILL COMPLETELY DISQUALIFY A CANDIDATE FOR EMPLOYMENT UNDER THIS UNIVERSITY

A.G. Sawant
REGISTRAR

THE UNIVERSITY OF KASHMIR

SRINAGAR

Advertisement Notice

Applications on the prescribed application form which should be accompanied by a postal order drawn in favour of the Registrar cashable at Srinagar Post Office, or University Money Receipt, of the value of **Rs. 5/-**, to reach the Registrar by **14-8-1982** are invited for the following posts:

Professors in the pay scale of Rs. 1500-2500 for Arabic, Education, Political Science and Geography.

Readers in the pay scale of Rs. 1200-1900 for Bio-Chemistry, Education, History (Temp.), Persian, Home Science, Mathematics and Zoology (Temp.)

Lecturers in the pay scale of Rs. 700-1600 for Sanskrit, Economics (Temp.), Law and Home Science.

The prescribed application forms can be had from the University Office on cash paament of **Rs. 10/-** or by sending a crossed postal order drawn in favour of the Registrar of this University cashable at Srinagar Post Office alongwith a self addressed envelope (5" x 11") with the necessary postage.

Candidates are advised in their own interest to send their detailed curriculum vitae in advance.

Details in respect of qualifications prescribed for the posts can be obtained from this office.

Peerzada Ghulam Hassan
SPECIAL OFFICER

It Pays

to

Advertise

in

University News

INDIAN SCHOOL OF MINES

DHANBAD-826004

No. 810824

Dated : July 10, 1982

RESEARCH PERSONNEL

As below are required at Indian School of Mines (which is deemed to be a University under the UGC Act) for the following projects:

Department of Industrial Engineerings Management

No. 134:	Development of system models and computeraglorithms for total system planning in the area of coal and energy	One Research Associate
No. 135:	Investment analysis for mining projects	One JRF
No. 136:	Motivational studies of mine workers	One JRF
No. 174:	Development of management *information system* based anlytical principles of Cybernetics.	One JRF
No. 175:	System dynamics, an application in corporate management.	One JRF

Department of Applied Geophysics

No. 168:	Analysis of gravity data from Eastern India	One JRF
No. 169:	Microseismocity associated with coal mine	One JRF
No. 170:	Seismic propagation characteristics in Gondwana formations.	One JRF
No. 605:	Depth of investigation studies in geoelectric methods—A DST PROJECT for 2 yrs.	Two JRF

Department of Electronics & Instrumentation

No. 913:	Longwall mining instruments—An electronics Commission PROJECT for 2 yrs.	One Research Officer
No. 171:	Studies on communication of mine data through fibre optics.	One Research Associate
No. 172:	Development of time *division multiplexed multi*-point monitoring for process industry	One JRF
No. 173:	Realisation and use of FNDR & FDNC, both at high and low frequencies.	One JRF

Department of Chemistry, Fuel & Mineral Engineering

No. 176:	Effect of additives on the quality of metallurgical coke.	One JRF
No. 177:	Beneficiation studies of noncocking coal	One JRF
No. 178:	Characterisation of water cyclones	One JRF
No. 179:	Preparation of highpurity oxides from low grade ores.	One JRF
No. 180:	Selective flocculation of coal/mineral systems.	One JRF
No. 181:	Electrochemical energy conversion	One JRF
No. 182:	Modelling of a floation operation.	One Research Associate
No. 915:	Study of sawdust as a *corrosion in inhibitor in acid* mine water in North Eastern Coalfields, Assam—A CMPDI PROJECT sanctioned up to April 1985.	One Research Officer One SRA & One FA

Department of Engineering & Mining Machinery

No. 183:	Power line carrier based signalling system for underground mines.	One Research Associate
No. 184:	Static integrated protection system for coalmine electrical power supply	One JRF
No. 185:	Aggregate maintenance scheduling of equipments in open cast mines.	One JRF
No. 186:	Three-phase flow in a pipeline comprising of water, air and solids.	One JRF
No. 187:	Analog simulation of mine winders.	One JRF

Department of Petroleum Engineering

No. 317:	Study of Petroleum recovery by surfactant/micellar *solution*—A CSIR PROJECT sanctioned upto Feb. 1983	One SRF
No 914:	Study of surface active compounds in crude Petroleum—An ONCG Project sanctioned for 3 years	One Research Associate

Department of Mining Engineering

No. 189.	Strength and workability of coal seams and coal measure rocks.	One Research Associate
No. 190:	Slurry transportation in pipelines.	One JRF
No. 191:	Carbon monoxide monitoring in mine air with infrared analyser.	One JRF
No. 408:	Rockburst studies in deep mines—A Ministry of Energy PROJECT for 2 years.	One Sr. Research Officer One Research Associate *& One SRA*

Department of Applied Geology

No 192:	Investigations of sulphide mineralisation in southern part of Sikkim.	One JRF
No. 193:	Nausahi igneous complex with special reference to basic suites of rocks and association ore deposits	One JRF
No. 194:	Structure and stratigraphy of the *Delhi* group of rock in the general *sector of the Delhi Oro*-genic belt, West of Beawar, Central Rajasthan	One *JRF*
No. 195:	Tectonics of the Eastern extension of the Singhbhum shear Zone near Bhalki and Kanyaluka, Bihar.	One JRF
No. 196:	Geological investigations of copper mineralisation of Nelanjkhand.	One JRF
No. 197:	Geostatistical analysis of *geochemical data of* bandad formation and associated ores of Western India.	One JRF
No. 198:	Pattern recognition of gold mineralisation at KGF.	One JRF

No. 199:	Quantitative stratigraphy and paleontology of the Jurassic rocks of Kutch.	One JRF
No. 232:	Shear Strength of Rock Joints.	One JRF

2.1 One third of the assignments are reserved for SC/ST candidates; they would however be thrown open if suitable SC/ST candidates are not available.

2.2 Except where mentioned otherwise, all situations above are ISM Fellowships/Associateships, and are sanctioned for a period of four years. However, the offer in the first instance in every case would be for a period of one year and would be renewed only after review of performance during the year. The appointment of any scholar is also subject to termination at any time if his progress/conduct is not found satisfactory

2.3 Selected candidates, where admissible under rules, will be required to register for the M. Tech degree (by research) or M. Phil/Ph D. degrees, as the case may be of the School.

2.4 **Value of Fellowship/Associateship/Payscale**

(a) Junior Research Fellowship (JRF): Rs. 600/- p.m. (consolidated) with a contingency grant of Rs. 3,000/- per annum. Junior Research Fellows may be promoted as Senior Research Fellows after two years of satisfactory research work.

(b) Senior Research Fellowship (SRF)
Rs. 700/- p.m. with a contingency grant of Rs. 4,000/- per annum.

(c) Research Associateship
Rs. 1,100/- or Rs. 1,300/- or Rs. 1,500/- p.m. (consolidated), depending upon the qualifications and experience of candidate, with a contingency grant of Rs. 4,000/- per annum.

(d) Sr. Research Officer & Research Officer:
Pay scale Rs. 1,100-1,600 & Rs. 700-1,300/-

(e) Sr. Research Assistant & Research Assistant:
Pay scale Rs. 550-900 and Rs. 425-700/-

Payscales under categories (d) and (e) carry dearness and other allowances admissible to other ISM employees.

3. **Qualifications and experience**

3.1 **Junior Research Fellows (JRF)**

No. 135: Postgraduate degree in Management/Economics.
No. 136: Postgraduate degree in Psychology/Soc Science.
No. 168 to 170 & 605: M.Sc./M.Sc. Tech/M.Tech degree in Geophysics/Applied Geophysics or M.Sc. degree in Physics/Mathematics (Pure or APP).
No. 172 & 173: B.Tech degree (or equivalent) in Electronics or in Elec Engg with specilisation in Electronics.
No. 174: MBA/M. Tech degree in Industrial Mgmt.
No. 175: MBA/M. Tech degree in Industrial Mgmt/Op Research.
No. 176: B. Tech degree (or equivalent) in Chem/Mech/Met Engg.
No. 177 to 180: B Tech degree (or equivalent) in Chem/Met Engg or M. Sc. degree in Ore Dressing.
No. 181: M. Sc. degree in Physical Chemistry or Physics with specialisation in Solid State.
No. 184: B. Tech degree (or equivalent) in Electronics or in Elec Engg. with specialisation in Electronis (prefarably with Static Relaying).
No. 185: B. Tech degree (or equivalent) in Mech/Elec/Min Engg or in Mining Machinery.
No. 186: B. Tech degree (or equivalent) in Mech Engg or Mining Machinery.
No. 187: B. Tech degree (or equivalent) in Elec Engg with knowledge of analog computing.
No. 190: B. Tech degree (or equivalent) in Mech Engg.
No. 191: B. Tech degree (or equivalent) in Electronics or in Min/Chem Engg.
No. 192 to 199: M.Sc/M.Sc. Tech/MTech degree in Geology/Applied Geology.
No. 232: M.Sc/M.Sc. Tech/M Tech degree in Geology/App Geology with good knowledge of maths.

3.2 **Senior Research Fellow (SRF)**

No. 317: M.Sc. degree in Physical Chemistry/Electrochemistry with minimum two years research experience or M. Tech degree in Pet/Chem Engg.

3.3 **Research Associate**

No. 134: B. Tech degree (or equivalent) in Min/Mech/Elec Engg followed by M. Tech degree in Ind Engg/O.R/Computer S.C.
No. 171: M. Tech degree in Comn System/Electronics.
No. 182: M. Tech. degree in Chem/Met/Mineral Engg or M.Sc. degree in Ore Dressing with two years research experience in the latter case.
No. 183: M.Tech. degree in Electronics/Elec Engg with specialisation in Analog/Digital Electronics.
No. 189: M Tech. degree in Mining Engg relaxable, in case of candidates of outstanding merit, to B Tech degree (or equivalent) in Mining Engg with First Class Managerial Certificate of Competency.
No. 408: M Tech degree in Electronics with knowledge of signal processing.
No 914: Ph D. degree in Phy Chemistry with specialisation in surface chemistry or M Tech degree (or equivalent) in Chem Engg with specialisation in interfacial phenomena.

3.4 **Sr. Research Officer/Research Officer**

No. 408: M.Sc/M.Sc Tech degree in Geophysics/App Geophysics, with Ph.D degree or high quality publications in the mining field of Seismology (preferably in seismic monitoring and three year experience in seismological observatory and interpretation of seismograph)
No. 913: B.Tech degree (or equivalent) in Electronics/Instrumentation Engg with two years lab experience. Candidates with knowledge of Microprocessor will be preferred.
No. 915: M.Sc. degree in Chemistry with Ph D. degree in Corrosion Electrochem, or M.Tech. degree in Metallurgy with research experience in corrosion. Ph.D. degree relaxable in case of candidates with good research experience in Corrosion.

3.5 **Senior Research Assistant (SRA)/Research Assistant (RA)**

No. 408: Diploma in electronics (or equivalent) with 5 years experiences, preferably including one year in the mining industry.
No. 915: M.Sc degree in Chemistry or B.Tech (or equivalent) degree in Metallurgy with two years research experience in corrosion/Electrochemistry for SRA; and for R A., M.Sc. degree in Chemistry B.Sc. degree with Chemistry as a subject with three years Laboratory experience/Diploma in Mech Engg with two years experience and knowledge of mine water pumps.

In all cases, candidates must have obtained at least 60% marks in the qualifying examination, relaxable to 50% in case of SC/ST candidates.

4. **AGE:** Normally not more than 30 years in case of JRF/SRA/RA and 35 years in case of others.

5.1 Interested candidates should send their applications on plain paper, giving Name; Date of Birth, Father's Name Present/Permanent Address; Telegraphic Address; Statement of Academic Qualifications (listing the Examination passed, Examining Body, year of passing, and Marks obtained in each case in tabular form, Statement of Research Experience, if any, along with a set of their publications and copies of testimonials (including marksheet in respect of the qualifying examinations) and whether belonging to SC/ST (with documentary evidence for the claim), so as to reach the undersigned by hand or by registered post A/D on or before **9th August 1982.**

5.2 Cadidates who have appeared at the qualifying examinations and are awaiting declaration of results may also apply. However, if called for interview, they will have to produce at the time of interview documentary evidence of having passed the examination with specified requirements.

5.3 The applicant should indicate clearly the assignment (JRF/SRF or SRA/RA or Sr. Research Officer/Research Officer or Research Associate, as the case may be) and the identification Number of the Project for which application is made.

6. Single second class railway fare by the shortest route from the place of residence to Dhanbad and back shall be paid to candidates called for attending the interview.

S.P. Varma,
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(6) History	One	One

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P. Viswanatham
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(4) Asutosh Professor of Sanskrit,
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   Qualifications: M.D./M.S./M.R.C.P./F.R.C.P./F.R.C.S. or an equivalent qualification in any branch of Medical Science. At least five years experience as Professor in a Medical College. Preference will be given to those who have a long experience as Professor/Head of a Department or Principal of a Medical College particularly those who have held responsible positions connected with the establishment of a teaching hospital.

   The Principal of College will also have to work as the Chief Superintendent of the Medical College Hospital.

   Desirable: Should possess the same basic University Medical qualification and other academic qualifications and a minimum of 10 years teaching experience as Professor/Associate, Professor/Reader in a Medical College out of which at least five years should be as Professor in a Department.

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   Qualifications

   I—Essential

   (a) A first or high second class *Master's* degree in the subject concerned of an Indian University or an equivalent degree of a foreign University,

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Applications duly completed in all respects should reach the Principal on or before **31st August, 1982.**

PRINCIPAL

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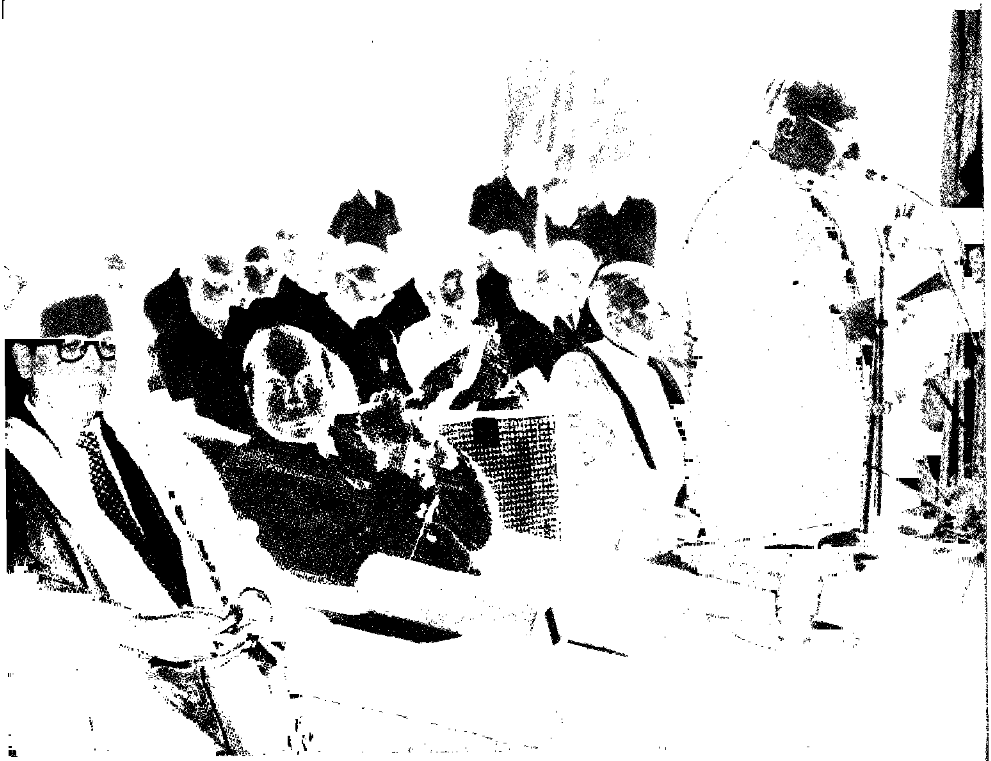
University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH AUGUST 15, 1982



Prof. G. Ram Reddy, Vice-Chancellor of Osmania University, speaking at the University Convocation. From left: Prof. Ram Joshi, Vice-Chancellor, Bombay University, Mr. Alladi Kuppuswamy, Retd. Chief Justice of Andhra Pradesh High Court and Dr. Y. Nayudamma, Vice-Chancellor of Jawaharlal Nehru University.

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UNIVERSITY NEWS

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IN THIS ISSUE

Universities & their Role in Development 518
Adult Education 521
Role of BHU in Rural Development 523

Convocation

Thoughts on some problems in Universities 525
Reforms in Higher Education 528

Campus News

Maharashtra Governor summons Joint Board of VCs on Examination Reforms 529
Recent developments in computerised methods of data analysis 529
K.K. Handiqui wing at Gauhati University Library 530
New scheme for Scheduled Castes 531

Agriculture

Modern techniques for Gur & Khandsari Units 532
HAU evolves new X-Ray techniques 532
Summer Institute on horticulture 532

News from Abroad

New wind-powered generator developed in Australia 533
Research in Progress 536
Theses of the Month 537
Additions to AIU Library 539
Advertisements 540

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

What ails the University System—Numbers

G.B.K. Hooja*

No seats for 12 thousand students. Thus reads a streamer in the Indian Express. It is reported that 34,753 students are elibible for admission having secured more than 40% marks against about 22,800 seats in various colleges. Since the University of Delhi has failed to increase the number of seats, 12,000 students are likely to be denied admission In Science courses the number of eligible students is 8,454 but the number of seats is 4,200. This means that those with first division will not be able to get admission. The Delhi University authorities had written to the University Grants Commission to permit the colleges to have more seats. Even if the UGC agrees to it will not mean much for the University had sought just 300 more seats.

How come this situation? Although unplatable, yet the truth must be faced that we in the academic field are a group of ceaseless talkers, hollow planners, slogan mongers. with no flavour for action. Witness the debris of the Radhakrishnan Report, the Mudaliar Report, the Kothari Report, etc.

The clamour for seats for the University wagon is bound to increase year by year. But by the simple logic of growth it would be appreciated that it would not be economically or physically feasible to increase the number of seats in the Universities in proportion to the annually increasing demand for admissions. In the event an ever-increasingly large number of students will be denied admission to the seats of higher learning for however much the UGC may like to be generous, it cannot sanction adequate number of seats to cope with the growing demand.

It is ironic instead of being centres of higher education our Universities have been reduced to the status of waiting halls for the unemployed and the University system is groaning under the load of numbers.

The question arises what do we propose to do about it. We have been talking of vocationalising the educational system for the last 20 years. But we have done precious little so far. All that is required is to make a craft compulsory at school to ensure that every boy and girl leaving school at the age of 17 or 18 is proficient in at least one gainful technical profession so that when he comes to leave the school at +12 stage, he can start his own independent workshop with the aid of loan from a bank if he so chooses or join some working organisation in the alternative. It is sheer commonsense that not every youngman or woman seeking a job can be absorbed in Government service. A large majority shall have to seek employment outside the Government system.

The other reason for seeking University admission

Vice-Chancellor, Gurukula Kangri Vishwavidyalaya, Hardwar.

is the linkage of jobs with degrees. We have been talking about this also now almost for more than a a decade but no effective action has been taken in this regard.

All that is required to be done in this direction is to review the qualifications prescribed for entry into various services under the state so as to eliminate the condition for degree for most of the services.

If a student is eligible for entry into the armed services after +12 and can aspire to the rank of a General, why cannot a +12 student enter into the police services and hopefully rise to the rank of IGP? The same would apply for IAS, Banking services, Insurance services, etc. The thing to do us to spot talent early and train the yonung hopefuls professionally. This will syphon off a large number of job seekers into socially constructive, productive and technical avenues and save the University system from the groaning burden under which it is operating now. Thus only in case a youth chooses. to adopt an academic career he may seek admission into the Universities, that is seats of higher learning.

To implement this programme, it would be necessary for Heads of Departments and Chairmen of Public Service Commissions to put their heads together and do some unorthodox and bold exercises. Such exercises are bound to yield large dividends in the shape of cadres of well-guided youth who would know where they might be usefully employed by society as they grow into maturity.

Let it not be forgotten that whereas on the one hand, thousands of vociferous urban or semi-urban students are knocking at the doors of the Universities with no scholastic purpose in view, on the other hand, crores of dumb, mute young boys and girls of school going age are without schooling facilities in the villages. Besides, crores of adult illiterates are walking the countryside deprived of the light of civilization. How to mitigate this social distortion and diabolical injustice?

Think of drafting the seekers of higher education to village schools as teachers for at least two years before they are considered eligible for admission into the Universities or for any Government job for the matter of that? Now, in this connection, what exactly are our Employment Exchanges doing? Is it not their function to put out statistics of national man-power requirement just at the time when School or University results are declared, to guide the young adolescents?

Need it be said that hard problems require honest searching and hard decisions?

[To be concluded]

Universities & their Role in Development

C. N. Bhalerao*

The basic aim of university education is to provide opportunities for the development of physical, intellectual and moral faculties of the students. In the strictly academic sphere, its true function is to impart universal knowledge in natural and social sciences and the humanities (including literature and civilisation) and expand the frontiers of knowledge through research. In addition to their intellectual function of scientific inquiry and analysis and their role in policy-making, the universities provide well-educated and trained man-power for what is called 'the third sector of the economy'—education, medicine, engineering, public administration, private management, commerce and industry. By performing these functions effectively, the universities act as instruments of social and economic change and provide a foundation for socio-economic, industrial and technological transformation and national development.

National and International Context

In the contemporary world, the compulsions, needs and problems both in the international and national spheres are such that university education and research has to respond to these challenges and issues. It can not be oblivious to the problems of the wide gap between the rich and poor nations, the prevalence of hunger, poverty, injustice, exploitation and unemployment among a majority of the people living in backward countries, international conflicts, struggle for power, violence and insecurity. Especially in developing countries like India, education has to be socially relevant and oriented towards development needs and problems.

Education for Development

The Indian model of development seeks to achieve social and economic equality, rise in levels of living, rise in productivity, rationality, democratic participation, secularism and national unity. Education for such development has to be action-oriented and promote *a critical awareness* of the problems of poverty, hunger, deprivation, disease, backwardness, corruption and fall in moral standards. As a UNESCO paper has emphasized, it *sensitizes* people to the need for economic and social justice, human rights, dignity and quality of life and self-reliance, imbibes the values of hard work, rationality and discipline and builds public opinion about priorities in planning for tackling the basic problems of the country.

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* *Professor of Political Science, NEHU, Shillong.*

Do our existing standards of education and research respond to the issues and challenges of social change and modernization? Do they create a critical awareness of national and international problems, sensitize the people to developmental needs and tasks, and create appropriate attitudes and values among them?

Declining Standards

In India, there are 108 universities and thousands of colleges. Writing in general on our present-day universities, a former Vice-Chancellor comments: "Standards of education have fallen and are falling. Universities to-day are hardly temples of learning and cradles of the country's future leaders. Their campuses are always in the grip of tension and often of violence." Excepting a few universities, the I.I.Ts, the Institutes of Management and technical institutions like Medical and Engineering Colleges, most of the universities are in a sorry state and are plagued by tensions, indiscipline, caste-politics, religionalism, political pressures and inadequate finances. Their courses in many disciplines are out-dated and much of their research possesses little social relevance.

Proliferation of Universities

A basic cause of the deterioration in the standards of university education is the proliferation of universities without regard to their quality or viability. Many of them have been set up in response to local political pressures. The result is inadequate buildings, over-crowded classes and ill-equipped libraries. Apart from the problem of turning out a vast number of frustrated and unemployed graduates every year (because of the 'open door' policy of admissions), the quantitative increase in the number of universities also leads to the problem of inadequate finances for their maintenance and development with consequent loss of autonomy. In some States, financial instability of the universities is proving to be a major problem.

Caste Politics

Secondly, most of the universities are pervaded by factional caste-politics. Caste-politics is at its highest in some of the universities in Bihar, U.P. and M.P. Caste and party loyalties cut across students' unions, staff associations and teachers' associations. Frequently, the students' and teachers' unions are supported and exploited by the politicians. In some universities, it is observed that the student leaders and teachers participate in the electioneering work of political leaders. Teachers also get involved in politics as it helps them to fulfil their careeristic ambitions. With the spectre of gheraos, indefinite closures, postponement of examinations, and publication of reports in newspapers, haunting the Vice-Chancellors, it is no wonder that they have little time for developing their universities. Afraid of the student and teacher leaders, they often seek to placate them which vitiates the entire academic atmosphere of the university, leading to replacement of academic standards by political considerations.

Regionalisation

Thirdly, there exists a wide gap between the elite, metropolitan or urban-based universities and those in backward regions or rural areas in regard to their resources and inputs. This has led to an imbalance in educational standards in the country. It also adversely affects the chances of the candidates from backward areas to enter the civil services or attain good professional standards. Fourthly, the introduction of regional languages as media of instructions in the universities and colleges has led to their excessive regionalisation in terms of recruitment of teachers and admission of students. They appear to have become so many isolated and regional institutions lacking in communication with others outside the State. While the demand for developing the regional languages is unexceptionable, it is necessary to promote the national language and also the English language through which alone teachers and students can remain in touch with the advanced knowledge and latest developments in their fields of specialization.

Need for Development-Orientation

Finally, if our higher education is to be development-oriented, basic reforms are called for in our courses, teaching methods and examination system. Most of our courses are out-moded, are based on standardised topics and set approaches, and do not sensitize the students to our developmental problems and tasks and the basic national and international issues. They need to be made socially relevant and inter-disciplinary. Similarly, the examination system should attempt to make a correct assessment of the calibre and progress of students. In this connection, a rigorous and well worked-out system, combining both annual and internal assessment as adopted in some universities can prove a better system. Some of these measures for improving the teaching methods, courses and examination system were already recommended by the Kothari Education Commission in 1967. But, as the Commission observed, what is lacking is the will for action which also accounts for our failure in other developmental spheres.

University education needs to be reoriented towards the task of promoiting intellectual and moral discipline, the spirit of rational and scientific inquiry and a critical awareness of the basic issues of society and development tasks. It also needs to focus on the problem of building up a sound national character and instilling a sense of commitment to society. Only so can the universities be equipped to play their role effectively in national development. ☐

TRAVEL GRANTS

The U.S. Educational Foundation in India, "Fulbright House", 12 Hailey Road, New Delhi 110 001 invites applications no later than November 15, 1982, for a few Travel Only grants to the United States from Indian scholars who have research or teaching assignments in the U.S. beginning January 1983 or later. Only those with programmes for a minimum period of three months will be considered.

Candidates must:

1. have a Ph.D. degree or equivalent published work
2. be Indian citizens and be present in India at the time of application
3. be proficient in English
4. be in good health
5. not have been in the U.S. during the last four years to reach or do research.
6. be accepted by a recognised U.S. university or research institution for post-doctoral research and/or as a visiting lecturer and must have assurance of dollar finance to cover their expenses in the U.S. for the duration of the assignment. The letter of acceptance must show the nature and duration of the assignment, and must be accompanied by evidence of dollar support, at the rate of not less than $6000 and not more than $20,000 per academic year. The evidence of dollar support could be in the form of a grant or fellowship offered by American universities or research institutions or by Indian universities or research institutions.

The grant will provide round-trip economy class air travel, by the most direct route, from the candidate's ordinary place of residence or his academic institution to his U.S. institution and back. Excursion fare tickets valid for 120 days will be provided for those with programmes of less than four months duration in the U.S. Travel will be arranged by the Foundation, and grantees must travel on U.S. visas issued against the IAP-66 provided by the Foundation and must conform to rules and regulations of the U.S. Government applicable to all exchange-visitor visa holders.

For application forms and further details contact : The Director, U. S. E. F. I., "Fulbright House", 12, Hailey Road, New Delhi-110001 before November 15, 1982.

Adult Education—Giving it a Fillip

B.B. Mohanty*

Adult education has been included in the Prime Minister's revised 20-point Economic Programme. The target is to cover 110 million adult illiterates in the 15-35 age group by 1990. Can this be done within the next eight years?

The Planning Commission had included adult education as an essential component of the basic minimum needs programme for the Sixth Five Year Plan. Last year, adult education was discussed at the Education Ministers' Conference. Even then things did not move. There is almost a deadlock in the field.

At present, about two and a half million adults are attending the adult education centres. And, if past experience is any guide, it is unlikely that we will be able to cover the 110 million prospective learners within the next eight years. But if we really mean business, we will have to take up the programme as a vigorous national campaign.

The successful literacy campaigns in the Soviet Union, China, Vietnam, Cuba, Burma, Tanzania, Brazil and Nicaragua suggest many innovative strategies. Most of these are Communist countries which give considerable priority to literacy and where a measure of compulsion is also used. In an international seminar on "Campaigning for Literacy", recently held in Udaipur, it was debated whether countries such as India can generate the required political will and also use an element of compulsion. The consensus was against compulsion.

Adult education in India had an uneven past. It did not, at the best of times, command articulated public support, political backing and Government funds. Its bitterest critics are from the formal education sector who think that its expansion might threaten their positions. In the recent past, some university vice-chancellors were up in arms against adult education. Their apprehension was that money was being channelled into it at the cost of higher education, although this was not so. Another hostile element is the general public, who think that adult education is going to expand at the cost of elementary and secondary education. Again this is not a fact.

President Julius Nyerere of Tanzania had once said that adult education is a highly political activity and the politician is more aware of this than the educator and, therefore, he does not want real adult education. Apart from the fact that education is a basic tuman right, we seem to forget that even in the matter of sending his children to school, a literate father fares better than his illiterate neighbour. This has been the experience in our country as well as in other countries, including Tanzania. Now that the Prime Minister wants students to be actively involved in the programme, one wonders how far this can succeed in a climate of hostility in the formal education sector.

A senior politician remarked the other day that perhaps the Education Departments in the States are the least suitable for organizing mass programmes like adult education, which should have links with development. He based his observation on the department's formal class-room orientation, their lack of communication with other development departments and their insensitivity towards rural problems which, according to him, come in the way of organizing a vigorous adult education programme.

Of course, there are exceptions, Bihar, for example, which spends a lot of money from its budget on adult education. Could we not have a separate Central organization directly under the Cabinet Secretariat, or an autonomous body with the Prime Minister as its chairman, to plan, direct, organize and oversee adult education programmes in the country? The normal routine of administering a massive programme through the Central Ministry and the State Governments very often slows down its tempo.

The 20-point programme also envisages involving voluntary agencies in the programme. The existing rules under which grants are given to voluntary agencies for organizing adult education programmes are time-consuming. The State Governments take an inordinately long time in processing applications and, by the time their cases are forwarded to the Union Education Ministry, a lot of valuable programme time is lost. Almost all the voluntary agencies involved in the National Adult Education Programme had pleaded before a high-level review committee that they should receive their grants directly from the Ministry of Education.

During the NAEP period, the programme was being organized by the Nehru Yuvak Kendras, colleges and universities, voluntary agencies and the State Governments which had the largest chunk of the programme. During the first year of the Sixth Plan (1980-81), the total expenditure incurred by all the States and Union Territories was less than Rs. 8 crores, against the annual outlay of Rs. 12 crores in the State plans for adult education. The Centrally-sponsored scheme of Rural Functional Literacy projects had the same fate; the States and Union Territories surrendered an unspent amount of Rs 2.32 crores out of the total annual outlay of Rs 10.67 crores. Each rural Functional Literacy Project is supposed to have 300 centres with 30 learners in each but, in actual practice, the maximum number of 300 centres has not been reached in most of the States.

Recruitment of the necessary staff to man the projects and centres has not kept pace with the programme. In one State, supervisors have not yet been appointed, in spite of the recommendations of the State Steering Committee for Adult Education and the State Board of Adult Education. And these two

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**Director, State Resource Centre for Adult Education, Orissa.*

coordinating organs in the same State are also lying defunct over the last two years. In the absence of supervisors at adult education centres, the project officer is now looking after hundreds of centres in each project. The quality of supervision and support necessary for the instructor is anybody's guess.

During the Sixth Plan period, Rs. 128 crores has been earmarked for adult education. It is doubtful whether, with the existing infrastructure, the programme can absorb all the money available. Of course, to cover 110 million people within the next eight years a lot more is necessary. Here we have a lesson to learn from the Burmese Literacy Campaign. In Burma, the literacy campaign is entirely through voluntary efforts, with the community finding all the money necessary for it. We can do the same, provided we reduce wasteful expenditures on weddings and so on.

The programme suffers from another weakness namely, dilution in the quality of the training programmes organized for the different categories of adult education personnel. The instructor is trained for any period ranging from one to three weeks but even in three weeks it is not possible to do justice to his training. Adult education demands a regular and well-trained cadre to manage it.

Resource development is another area where a lot remains to be done. There are 15 State Resource Centres for Adult Education in the country, and the Education Ministry's Directorate of Adult Education is the National Resource Centre. These institutions should be staffed with first-rate resources personnel so that they can develop the resource base for adult education, utilizing the best available low-cost technology of printing, appropriate methods and materials for training, low-cost and effective media of communication and formative and summative research and evaluation methods. India is one of the few countries in the world which has tried the resources development mechanism with some success. Why not optimize resources development efforts by inducting first class personnel and providing the necessary financial inputs?

Organization of adult education programmes for special groups, such as women, the Scheduled Castes and Tribes, has so far been neglected. These groups deserve priority attention, and their programmes need adequate financial inputs and appropriate resource supports.

The present 10-month adult education class is itself a demotivating factor for the learners. Programmed learning has shown that the learner acquires confidence at every stage of his success, and the sooner he sees his successful efforts, the better for him to sustain his learning. Perhaps we could divide the first learning cycle into three units of three months each, so that the learner is motivated by his own efforts. This has been tried in some countries with advantage, and such an arrangement would suit a speedy national literacy campaign.

There has been a total lack of post-literacy and follow-up efforts. The learner seldom applies his literacy regularly owing to lack of reading and writing facilities and soon relapses into illiteracy. This has been a regular phenomenon with us ever since our efforts began to eradicate illiteracy but it is seldom given the attention it deserves. Literacy cannot be sustained in an illiterate environment. Provision of adequate and suitable reading materials, such as books, bulletins and rural newspapers, is an urgent necessity.

A.I.R. stations broadcast weekly programmes on adult education, each of 15 minutes duration. After the INSAT is launched into orbit within the next couple of months, there will be tremendous opportunities for augmenting adult education programmes over radio and television. Moreover, broadcasting has to be decentralized, with a network of small powered district transmitters, so that development-oriented programme production can be really participatory.

The traditional folk media of communication are most suitable for adult education. The various folk performers have to be identified for blending adult education into their traditional themes. As the Tanzanian experiment shows, national mass campaigns are best promoted by the media of communication.

Our people are used to their own learning systems which were, and still are, very much alive to their needs. Indonesia has identified the learning systems and has been able to develop the learning resources for use in adult education. We can do the same. To begin with, we can revitalize the village learning centre where people can sit and talk, listen to the radio, watch TV, read newspapers, discuss the topics of the day and organize other learning activities. This could be the beginning of the learning society of the future.

[*Courtesy* : *The Statesman*]

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Role of BHU in Rural Development

Satyendra Tripathi*

The universities have been largely concerned with the functioning of teaching and research. Now there is a growing realisation that the institution of higher learning have an obligation to get intimately involved in the development of the community. So far a limited number of persons have the accessibility to these institutions. In India the majority of individuals are deprived of any tangible benefits of our educational system as such. Consequently, literacy, social and cultural deprivation and poverty are on the increase. Therefore, it is necessary that the university should come forward and serve the community for a better quality of life.

Keeping in view the above objectives, the Banaras Hindu University has established a Centre for Integrated Rural Development in the year 1979 by adopting 123 villages. The university has accepted the challenge to improve socio-economic and health conditions of rural people in the area. This is a unique experiment which an academic institution has taken the responsibility for the welfare of the people. The university already has technical know-how and expertise in the campus itself. For Integrated Development, task groups were constituted to decide for the special role that expertise in this university could, through interaction, be carried to the door steps of the villagers. The whole structure is broadly divided into five groups to take care of different areas and have an integrated approach to get the best results. The fields are: training, teaching, research and evaluation; community health and rehabilitation; agricultural extension; rural appropriate technology; legal aid and consultancy services and social awareness. The centre has also taken the extensive work for women and child welfare and scheduled castes/ scheduled tribes and the weakest section of the society. The university has already initiated work and implementing various programme in the Block.

In the scheme the Centre has taken Growth Centre as the Nucleous. Under the scheme the GROWTH CENTRE will cover the villages circumscribing within 5 K.M. This Growth Centre will feed back, diffuse and dessiminate the scientific knowledge through demonstration centres for application of science and technology. N.S.S. wing has also been associated for accelerating the growth and development of the area. In this way the students community will also be involved in bringing change and development. This process will expose the students to the problem of the community and rural areas. At present the university has involved 10 Junior Research Fellows from different disciplines for conducting the specific studies in the area which would help in formulating the perspective plan.

The centre has also started the training programme for Community Health Workers/Traditional Practitioners/Indigenous Medical Practitioners in Chiraigaon block and Kashi Vidyapith block and have trained 100 Health Practitioners for the welfare of the rural community. The Centre has also organised several eye and surgical camps at the sub centre—Tikari and Jalhoopur under Kashi Vidyapith block and Chiraigaon block respectively.

The university through the centre has organised Adult Education Programme. At present 60 Adult Education Centres have been functioning in different blocks of the district in which 21 centres have been opened in K.V. block and 39 centres in Chiraigaon block, which are creating a social awareness among the farmers of the area. Adult Education is not only to give the knowledge of 3 'R's but making themself sufficient in different areas.

Under the Agricultural extension Programme 2 types of demonstration have been taken up :

1. Comparison of scientific methods followed by the farmers and Malviya drill evolved by this university,
   This has given good response by the villagers.
2. Comparison of newly evolved wheat seed variety of B.H.U.

On these two aspects more than 16 demonstration have been laid down in the two clusters of Chiraigaon block i.e. Jalhoopur, Narainpur, Dinapur, Khutahna etc. It is worthwhile to mention that the similar demonstration were carried out in other villages too successfully. Kisan Melas were also organised for creating an awareness for adopting the new techniques of cultivation.

Consultancy, legal literacy and legal aid services to poor farmers were also provided by the centre. An All India Workshop on Legal Aid Services and Legal literacy was organised by the Centre. The centre is trying to provide facilities for legal aid to the farmers at the Growth Centre by involving LL.M. students of the university. In this way we may be able to reduce the expenditure on the legal matters of the villagers.

We are happy to announce that our centre has evolved the techniques of Cheap housing by providing guidance to the villagers. The Govt. of U.P. has sanctioned a cluster of 18 houses for Harijans Basti of Rustampur village under Chiraigaon block. This is our great achievement that Govt. of U.P. has approved the new cheap house scheme which was erected as a model in the campus.

(Contd. on page 527)

**Professor, Centre for Integrated Rural Development Programme, BHU.*

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Thoughts on Some Problems in Universities

Excerpts from the convocation address delivered by Mr. Alladi Kuppuswami, Retd. Chief Justice, Andhra Pradesh High Court, at the Osmania University.

Convocation

"In ancient times India occupied the foremost place among the civilised nations, but due to various reasons it has now the misfortune of being classed among "developing nations." If India has to take its rightful place which it once occupied it cannot afford to remain idle. Science has developed at a rapid pace and the gap between the advanced and the backward countries has widened. It is only by adopting the most vigorous measures, by putting forward our best efforts in the development of science that we can hope to bridge the gap. As the University is the place where the foundation for higher knowledge is laid, it is of the utmost importance that education of the highest standard should be imparted at the University level. It is only then that we will be able to produce mathematicians, scientists, technicians, economists, historians etc., who can compete on equal terms with those in the more advanced countries. As Aristotle said, the fate of a country depends upon the education of the youth.

"Hence the most immediate and primary objective must be to raise the standard of University education so that the youth of this country may be in a position to contribute in a great measure to its prosperity. Universities on the other hand are tending to become factories manufacturing graduates without due regard to the quality of the product coming out of the factory. How is this objective of maintaining a high standard to be achieved? The first and most important step is to see that the teachers in the University are of persons of considerable ability. The education provided in a University is determined overwhelmingly by the kind of men and women who teach. Magnificient buildings and equipment are no substitute for the good teacher. If our country is to march ahead in science and scholarship, Universities must recruit for their staff the best minds in the country. In order to attract persons of high merit and ability to the teaching profession it is necessary that they should receive reasonable remuneration for their services. Though in the past few years, steps have been taken to improve the service conditions of the teachers in the University, it must be confessed that their remuneration does not compare favourably with that of administrators, executives and persons employed in business organisations. The result is that bright young men and women prefer to enter the administrative service or to seek jobs in banks or companies or take to the medical, legal and other professions. They take to teaching as a last resort when they fail in their attempts elsewhere. Apart from the low emoluments attached to a teachers' post it has unfortunately come to pass that the teachers are not accorded in society the status and respect which they deserve . . .

"The University is not only to be regarded as a place where students are taught and are enabled to obtain degrees but should also be regarded as one of the important places where research is to be carried on. In order to facilitate research, sufficient finances should be made available to the University by the Government. Any amount spent on research projects undertaken by well qualified students and teachers cannot be considered a waste.

"Any effort at improving the quality of teachers and affording facilites for research will be of no use unless the student has got the willingness and the capacity to learn. The student must realise that the years spent in the University are perhaps the most important period of his life. The young student is endowed with full vigour and vitality, both physical and mental. During this period the capacity for creative thought is the highest. Without realising this, most of the students regard the precious years spent at the University as a period when they are free from the tyranny of parents or the burden of family life and that they should enjoy themselves. The students must realise that they should lead a disciplined life and devote themselves wholeheartedly to study. It is no doubt true that the student is entitled to freedom of thought and expression like any other citizen. He must be encouraged to express his views without fear so that the best in him can be brought forth But such freedom is not inconsistent with a disciplined way of life. Students must learn to disagree without being disagreeable. Unfortunately in recent times, we hear of frequent strikes, mass copying, and scant regard for law and order on the part of students. The root cause of all these acts of indiscipline are in my view only a few undesirables among the students. Unfortunately the majority of the students who do not normally have such tendencies, who are law abiding and devoted to their study, are made to follow these mischievous elements partly because of mass hysteria, induced by the miscreants, but mainly because of fear of reprisal. If unruly elements are sternly dealt with and weeded out I have no hesitation that the students who are honest and devoted to study and learning will be able to attend to their work peacefully and without any hinderance...

"It is common knowledge that many of the acts of indiscipline of students are to be traced to their unhealthy involvement in politics. There cannot be any doubt that a student should take an intelligent interest in politics. Most of the students, especially in the higher classes of the University, have got the right to vote and in order to excercise their right intelligently, they must be vigilant and must critically examine the conduct of politicians and their mode of Government. But students should always remember that the primary object is to learn and if they dissipate their energies in political squabbles, there will be very little time left to learn anything...

"It is our duty to see that opportunities are given to the scheduled-castes and scheduled-tribes to compete with the more fortunate brothers on equal terms. If admission to colleges is to be governed strictly by merit, it is almost imposible for them to enter a college. That is why, the Constitution-makers very wisely provided that there should be special reservation for them. It further provided reservation for backward classes which was also necessary as it is well known that there are many weaker sections apart from scheduled-castes and tribes who are socially and educationally backward. In practice however there has been considerable misuse of this provision. Ultimately the benefit of reservation is not reaching the persons whom it was intended to benefit, but only the prosperous, the wealthy or the privileged among them. Adequate steps have to be taken to see that this does not happen and the persons who really deserve the benefit get it...

"It is to be seriously considered whether this reservation should not be discontinued after a reasonable time even in the interests of backward classes. Perpetual protection kills the will to fight and to come up in life and those who enjoy such protection are bound to become hot-house plants which have to be kept in the shade and cannot survive in sunshine. While serious attempts are being made to remove the evils of caste system, we have created another section of the community called 'backward classes'. We must begin to think hereafter in terms of society consisting of individuals, not of groups, communities, castes or classes. It is an extremely unenviable task this country is faced with. On the one hand we must have people of merit entering our education institutions and occupying posts of responsibility. On the other hand we have the elementary duty of protecting and encouraging weaker sections who have an uphill task in competing with their more fortunate brethren. This requires considerable courage, tact and skill on the part of our leaders...

"Apart from reservation of seats, massive economic and financial aid and other amenities should be provided to deserving students belonging to the scheduled castes and tribes and to other socially, economically and educationally backward students so that they are not handicapped in their race against others who are better equipped to fight the battle of life.

"The University of to-day has assumed gigantic dimensions. Almost every one who passes out of school is anxious to enter the University and obtain a degree, as otherwise he finds it difficult to compete with others in securing employment. The number of graduates has increased to such a large extent that many of them are finding it difficult to secure employment and hence there is a rush to secure admission to post-graduate classes also, in the hope that a post-graduate may be preferred to a graduate by the employer. Thus, the number of students in the Universities is increasing enormously every day. In these circumstances perhaps it is necessary to limit the number of colleges in a particular University and the number of students in each college in order to see that proper instruction is given to the students. This will inevitably lead to the establishment of more colleges and more Universities. Some are of the view that the proliferation of Universities is not in the interests of University education as the dignity and prestige of the University will be affected. But in my view it is better to have a compact University with a reasonable number of colleges and students who will get proper instruction instead of a huge unmanageable University with a large number of students. This will also solve to some extent the problem of student discipline. While establishing new Universities, care must however be taken to see that there is no duplication of courses and the Vice-Chancellors and others responsible for the administration of Universities should get together and see that different courses of instructions are given in different Universities as far as possible. I would go even so far as to suggest that there should be separate Universities for Medicine and for Law, as the number of students in each case is very large. I cannot speak with much confidence about medicine but as far as law is concerned I feel strongly that the time has come when there should be a separate law University for the entire State. The number of law students is increasing day by day and there is a clamour for more law colleges. Law education is closely linked with the profession and it will be of great advantage if there is a separate University so that the University may collaborate more easily with the Bar Council and if necessary with the judiciary in dealing with all the requirements of a law student...

"One question that is frequently asked is what type of education should be imparted in a University. Should it be liberalised education or specialised knowledge in particular subjects? Prof. Einstein the great scientist was of the view that the aim of the University is the development of the general ability of independent thinking and judgment which should always be placed foremost and not acquisition of special knowledge. He used to say that with specialised knowledge the man more closely resembles a well trained dog than a harmoniously developed person. It is more important to enable the students to think for themselves than to load their memory with the thoughts and views of other men. In order to train a student to think for himself there should be a greater accent on imparting education in basic sciences. Study of those sciences would encourage logical reasoning and a scientific approach. Some have been of the erroneous view that teaching and research in basic sciences is an expensive luxury which a developing country cannot afford. On the contrary it does not require heavy financial outlay to impart instruction in basic science and to do research in that field. While it is no doubt true that they may not produce immediate results, they are sound long-term investments which are sure to give substantial dividends later.

"Education does not consist merely in reading books and passing examinations. Under the present system of education there is too much dependence on books that it is deadening the creativity of students. The students must be encouraged to take part in sports, athletics and co-curricular activities. Though some facilities for sports and co-curricular activities are provided we have still far to go. Though India is a country with a population of over six hundred millions we are unable to win a few gold or even silver medals in athletics in the Olympics. Even in games we are far behind other nations. There are many students talented in music, art and drama. No sufficient encouragement is being given to them. Instruction should be given in a number of subjects by way of short-term courses as in the United States and other countries so that any student who is studying a particular subject in a college, if he is interested in other subjects, may also attend such classes and obtain certificates or diplomas in such courses...

"India attained independence after a long and bitter non-violent struggle against a mighty empire. But after independence we gradually began to lose the spirit of sacrifice and those at the helm tried to utilise positions of power to their advantage. No doubt, our country has during the past 35 years after attaining independence, made large strides in the fields of medicine, agriculture, science and industry. The green revolution has solved the food problem in the country. We have made great advances in nuclear science and space technology. We have also made considerable progress in industry. But unfortunately our moral values have deteriorated. Corruption, hoarding, black-marketing are on the increase. Respect for law and order is vanishing. The older generation has failed to set an example and give proper lead to the people. If our country has to be lifted out of this mire, the main hope lies in the youth of this country. ." ☐

Role of BHU in Rural Development

(*Contd. from Page 523*)

The training in the cottage industries were also started by the centre. More than 250 persons have been trained in washing powder, soap (bar and bath) vim powder, ink making chalk making, candle making, inscence stick making, animal diet making, charakha spinning and training for food and fruit preservation etc. We are happy to announce that some of the trainers have started their own business to improve their economic condition and per capita income. We are planning to start a comprehensive training cum production programme for the rural people in the Growth Centre which would provide facilities of marketing for the above products.

We are also imparting training to rural ladies for sewing and cutting, knitting and some technical mechanisms for repairing the sewing machine. This would help the rural women to be independent economically.

The university has also made a survey of delineation of potential Ground Water Zone of Chiraigaon block. The result of geoelectrical exploration have brought out the main lithological features of major part of the Chiraigaon block. The water table in the area appears to be connected with the aquifer presenting unconfined conditions. Hydrogeological conditions suggest that the precipitation is the main source of recharge of ground water except in the floor plains of river ganga.

Besides the above programme the Centre is doing the survey on Comprehensive Health Services Research at district level which is financed by Indian Council of Medical Research, New Delhi. In this way we will be in a position to point out the health condition of the people of entire district.
July 1982.

The centre is very keen to involve the voluntary agencies and students and social workers who have engaged in the social services in different areas. We have decided to coordinate the activities of Govt. agencies to improve the quality of life of the people.

By joining as a Professor on S.B.I. chair we may be able to organise the training and orientation programme for Sarpanch, Gram Pradhan, Sadasya, Block Pramukh, Govt. and non-Govt. officials, voluntary organisations already working in the field. This will give a new perspective for accelerating the strategies of rural development in scientific and systematic manner. The university has also thinking to organise a postgraduate diploma course in Integrated Rural Development to train the devoted workers in the field which may feed to new schemes which are going to be started by the Govt. We may be able to show the impact of the university on the community within a period of short time. We hope the citizens, social workers and voluntary agencies will extend the whole hearted cooperation in making this experiment a successful one, by their herculian efforts. ☐

Reforms in Higher Education

Excerpts from the convocation address delivered by Shri M. Hidayatullah, Vice-President of India, at the University of Calcutta.

"...In the several Convocations that I attended lately I spoke of my personal ideas about the state of higher education in India. I am worried about the mass production of degree-holders of varied kinds who find no employment because there is little correlation between the avenues of employment and the kind of education we purvey. Under-employment is thus growing hand in hand with the under-utilisation of the potential for employment. A nation exists by the efforts of satisfied citizenry. Our education results in dissatisfaction because it serves no purpose in a large number of cases.

"We cannot blame anyone except ourselves. We often hear that the British Rulers were only interested in education which provided the Rulers with Babus working under officers mostly from Britain. To a certain extent this charge is true. But what have we done to change the system? We have been apathetic towards the real problem. And when I say we, I include myself also. We all had thirty-five years to act. We set up several committees and got many suggestions to improve the system but changing it to meet the changed conditions in our society and the world. I shall explain my meaning.

"We need men to run our offices, our industries, our public utility and social services. The need is not only in urban but also in rural communities. It is obvious that what serves the urban communities does not necessarily serve the rural communities. We have yet to devise different kinds of educational institutions, which will cater for offices, factories, industries, rural needs and many social services. At the moment our stereotyped education in universities is supposed to take care of all these diverse requirements with only one kind of education. In our educational schemes we do not introduce variety, we do not estimate the employment potential and its variety and then provide for it. There are many handicrafts, and many varied jobs which need specialisation. But we do not create specialisation and training to that end. Most of our trades and professions are learned either at home, that is from father to son or as an apprentice in employment. None knows why we cannot teach these crafts and skills to start with instead of arid subjects which never form part of the professional aptitude. Take any trade whether of the cottage industry type or the highly sophisticated industry type. There is always room for education, training and specialisation in the skills needed. There is no attempt to teach these skills and no research done to find out the employment potential and the expertise required.

"It is remarkable that foreign countries are luring away our highly educated and trained men and women. Why should they not? They stand to gain because they do not have to run institutions of their own to give this basic education and training. They get men and women trained by us at our cost and reap the fruits. We only bewail of the brain drain. Should we not ask ourselves what is being done by us to counteract this? If the holder of special qualifications is offered lucrative employment abroad and has also excellent equipment and libraries to work with, can we really blame him if he goes away? We have to overhaul our entire educational system from school to higher education. We should aim at the largest possible area of general education, which was described before, as the three Rs which meant "reading", "riting" and "rithmetic". This with languages and a modicum of general knowledge should be our aim for universal education. Thereafter we must not educate but train the next largest number. This training will cover all ordinary trades and professions, handicrafts and artisanships. Next a smaller number with special aptitude must receive technical education to develop technical skills. Lastly the most qualified ones will go in for the highest education research etc. They should get the utmost assistance to do the best and vie with the greatest in any country. Therefore, pressures of numbers on our educational institutions must be removed.

"I will give an example. Till now the legal education was imparted after graduation in some other subject. Therefore, the student had to undergo first 10+2 years of education, next+3 years of university graduation in subjects as diverse as physics and philosophy and then he had to do his law degree in another+3 years and then+2 for professional training.

"Recently I fought for shortening this period and succeeded with the Bar Council of India and University Grants Commission. Now after 10+2 one can take law as a subject for graduation and then take special courses for 2 years for professional purposes. A saving of 3 years thus results to the parents, the student and the institutions and the legal education will be better than that given in evening and morning classes. Similar measures will save time and money all round if our education is planned round employment potential and is not planned round some selected subjects.

"Our country is passing through a sensitive and critical period of its growth as an independent nation. We should be sorry that we have let time slip by. But there is no need to be despondent. Even now we can educate our young in an appropriate and scientific manner that will not only satisfy the aspirations of the student world, but also help the needs of the developmental efforts of the Nation. The sooner we get down to reviewing the educational problem in this way, the better it will be for us." ☐

Campus News

Maharashtra Governor summons Joint Board of VCs on Examination Reforms

The Governor of Maharashtra in his capacity as Chancellor of all Universities in Maharashtra called a special meeting of the joint Board of Vice-Chancellors recently to discuss among other things issues related to conduct of examinations, declaration of results in time; reducing the work load of examinations in the universities; question of leakage of question papers; uniform marking and finally the introduction of semester system. In his opening remarks, the Chancellor expressed his unhappiness that most of the universities have not been able to declare results in time and that this will have serious repercussions in the running of colleges and universities for the ensuing academic year. The Chancellor was also unhappy over introduction of very many new courses without any preparation. He suggested that top priority may be given to the job of declaring results on time.

Prof. Natarajan of Association of Indian Universities said that one of the most important things in the whole system of examinations is the planning of the whole schedule to be able to declare results on time. He suggested different ways for the proper functioning of the three stages of examination work i.e. pre-conduct, conduct and post conduct stages. He advocated for centralised paper setting for maintenance of secrecy, planning of time schedule to cope up with the increased number of examinations and candidates. He also suggested centralised evaluation and getting a print out of marks secured by candidate in all subjects by feeding to the computer marks of different subjects obtained by the candidate. Besides he advocated uniform marking, involvement of a team of papersetters and 3 or 4 sets of papers for prevention of leakage of question papers, involvement of colleges in conducting first, third and fifth semester examinations for reducing the work load of examinations on the universities. He stressed the need of the introduction of semester system and brought out certain characteristics of the semester system as against annual system of examinations like the flexibility in the number of courses, more specific and objective/target oriented teaching, the objective nature of the questions, inclusion of internal assessment and the provision for development of and assessmental of behavioural abilities like initiative, interest, attitude and regularity.

One of the major recommendations made was to get every examination paper to consist of Part A Objective; 20 to 40 items; 20 to 40 minutes, 20 to 40 marks; Part B 10 to 15 short answer questions, 60 to 90 minutes, 30 to 45 marks and part C 1 to 3 essays, 20 to 60 minutes, 15 to 45 marks. Part A will be conducted by the university; Part B by an Examination Council constituted for every District with a number of colleges responsible and Part C of the examination conducted by colleges. Every university was urged to consider these suggestions in the light of the constraints and restraints by setting up task forces immediately.

Seminar on language teaching at Patiala

Delivering the keynote address at a three-day seminar on "Stylistic and Language Teaching" organised by the Northern Regional Language Centre in the science auditorium of Punjabi University, Prof. Braj B. Kachru of the Department of Linguistics, University of Illinois, U.S.A., strongly pleaded for solving India's language problem with the help of Indian models instead of the Western ones being used by many scholars.

Dr. Gerhard Nickel of the Institute of Linguistics, Stuttgart, Germany, inaugurated the seminar. He stressed the need for reuniting linguistics with literature.

Dr R.N. Srivastava of the Department of Linguistics, Delhi University, in his presidential remarks, said many scholars had pinpointed the dangers of applying strictly linguistic methods of literary facts.

Dr. D.P. Pattanayak, Director, Central Institute of Indian Languages, Mysore, stressed the need for undertaking research on regionally marked styles of composition.

Recent developments in computerised methods of data analysis

Professor K.S. Hegde, Vice-Chancellor, University of Mysore, inaugurated a Summer School on Computerised Methods of Data Analysis. This training programme was conducted at the Post-graduate Dept. of Statistics, Manasagangotri, campus of Mysore University by Indian Statistical Institute, Calcutta from 31 May to 12 June, 1982. Professor B.N. Mukherjee of the Computer Science Unit of Indian Statistical Institute, Calcutta served as the Course Director.

The Indian Statistical Institute, a pioneer in the field of electronic computer in India, has initiated a series of summer schools at various places in India to explain and discuss the role of electronic computers in the area of research, development and management. The first summer school in this series was held at the Indian Institute of Technology, Madras in 1977 followed by the second one at Bangalore in June 1979. The main theme of the third Summer School in this series held this time at the University of Mysore was to highlight some recent developments in computerised methods of multivariate data analysis. Attempts were made to bring to the attention of the participants methods of multivariate data analysis and the use of computer in model building as well as in forecasting in diverse fields of applications such as agriculture, economics, psychology, education and health sciences. A total of 37 participants and a few observers belonging to different universities, government organisations and autonomous institutions benefited from this training programme.

In this summer school, a total of seven faculty members of the Indian Statistical Institute took the responsibility of teaching and interacting with the participants. In presenting the logical basis of various multivariate techniques of data analysis, they not only described the computational algorithms but also demonstrated the applicability of the techniques in different fields with computer software package. Each participant was supplied with lecture notes and programme listings and brief instructions for using the computer programme. Almost all participants found the course and the lecture notes very useful.

The Summer School came to an end with the valedictory function held on the afternoon of 12th June, 1982 which was presided over by Dr. R.P. Pakshirajan, Professor & Head, Department of Statistics, University of Mysore. Dr. S.K. Mazumdar, Acting Director of the Central Food Research Technological Institute, Mysore delivered the valedictory address and distributed the certificates of attendance to the participants. Dr. J. Roy, Research Professor & Head, Computer Science Unit, Indian Statistical Institute, Calcutta moved the vote of thanks.

PAU students attending NSS camps

Under the Youth for Rural Reconstruction Programme, 260 students, including 130 girls, of the Punjab Agricultural University attended the National Service Scheme (NSS) Camps in four villages of Ludhiana recently. The programme was launched under the National Service Scheme by the Directorate of Students' Welfare of the University.

In her inaugural speech, Dr (Mrs) S. Bajaj, Dean of the College of Home Science said that the girls should conduct a social survey of the village to know the real needs of the rural women. The girls should teach them the new techniques of modern living, use of labour saving kitchen appliances, child care, preparation of nutritious recipes, food preservation, tie and dye and storage of food grains. They should mobilise public opinion against social evils like drinking and dowry system.

The boys' camp which was inaugurated by Mr Prithipal Singh, Director of Students' Welfare, will help the farmers in paddy transplantation and food grain storage. The campers would do earth work on the link roads and plant eucalytus and fruit trees. During the camp days the Veterinary doctors of the PAU, would attend to the sick animals while the agricultural engineers would repair tractors and other farm machinery.

OU convocation

At a convocation held in Osmania University in June, 1982, honorary degree of D. Litt was conferred on Shri G. Parthasarathi, Chairman, Indian Council of Social Science Research, Prof. Ram Joshi, Vice-Chancellor, University of Bombay and Dr. Zaheer Ahmed, Adviser on Rural Development, Government of Andhra Pradesh and the honorary degree of D.Sc on Dr. Y. Nayudamma, Vice-Chancellor, Jawaharlal Nehru University.

The Vice-Chancellor of the Osmania University, in his citation presenting Shri G. Parthasarathi referred to him an "illustrious statesman, educationist, administrator and scholar." Dr. Nayudamma was referred to by the Vice-Chancellor as an "eminent scientist, educationist and humanist of rare courage and conviction". Prof. Ram Joshi was cited as an "eminent educationist, dynamic leader and great scholar" and Dr. Zaheer Ahmed as an "eminent statesman, administrator, scholar and author."

The convocation address was delivered by Mr. Alladi Kuppuswami, former Chief Justice, Andhra Pradesh High Court, excerpts of which appear elsewhere in this issue.

K.K. Handiqui wing at Gauhati University library

Professor K.K. Handiqui, who was the founder Vice-Chancellor of the Gauhati University, donated his personal library consisting of rare and valuable books and journals in Russian, Greek, Italian, German, French, Spanish, Latin, Vedic-Sanskrit, Classical Sanskrit, Pali and Prakrit languages besides English and Assamese to the Gauhati University for keeping the collection for reference use only in a separate wing of the University Library. The total Collection includes over 7,630 rare books and Journals on Archaeology, Drama, Literature, History, Religion and Dictionaries.

In a function, presided over by Dr. J.M. Choudhury, Vice-Chancellor of the Gauhati University, Dr. M.N. Goswami, a former Vice-Chancellor of this University formally inaugurated the K.K. Handiqui memorial collection on 22nd July 1982.

It has been decided to print a catalogue of these collection of books so that research scholars and others of other Universities could also benefit. The Executive Council of this University also decided to name the University Library as "K.K. Handiqui Library".

Dr. Goswami in his inaugural address said that the Gauhati University should fulfil the desire of the late scholar by translating into English extensive history of the Puranic literature. If the University could fulfil this herculean task, it would be a fitting memorial to the noble soul, he added.

Earlier on 6th July, 82 at simple function held at Jorhat, the home town of late Handiqui, the Library was formally handed over to the University authorities by the family members of the late scholar.

New scheme for scheduled castes

The Punjab Agricultural University has launched a new scheme which, it is hoped, will show the way for the uplift of scheduled castes and other backward communities. This is a pilot project to be implemented at a cost of Rs. 6.16 lakhs for identifying programmes which can be usefully taken up by the economically backward classes.

These programmes include training in vegetable and fruit growing, raising seedling nurseries, processing of fruits and vegetables and appropriate use of community land etc.

Punjab, although a small State, has a larger population of scheduled castes than even bigger States. It has 33,48,000 scheduled castes against 18,90,000 of Gujarat, 31,77,000 of Maharashtra, 20,00,000 of Kerala, 33,07,000 of Orissa. It has, of course, many more members of the scheduled castes than smaller States of Haryana and Himachal Pradesh.

A scientist of the University will be incharge of this project. Similar projects have been assigned to several other agricultural universities like Haryana Himachal Pradesh and 13 more in other States by the Indian Council of Agricultural Research. These projects are to be completed in the remaining three years of the Sixth Five Year Plan.

Scientific symposium at Calcutta

As part of the golden jubilee celebrations of Ramkrishna Mission Seva Pratisthan, a 4-day scientific symposium was held at Vivekananda Institute of Medical Sciences, Calcutta. About 500 scientists and physicians from all over India attended the symposium. Papers on different disciplines were presented.

Prof. A.K. Basu, Dean of Vivekananda Institute of Medical Sciences, recounted the growth of the Pratisthan during the last 50 years. The inaugural address of the scientific session was delivered by Prof. Ramalingaswamy, Director-General, Indian Council of Medical Research. Swami Ranganathananda, President, Ramakrishna Math, Hyderabad, presided.

VCs asked to degrade posts of temporary principals

Dr A.R. Kidwai, Governor of Bihar and Chancellor of Universities in the State has asked the Vice-Chancellors of different universities to degrade the posts of temporary principals of colleges as professor-in-charge. In a circular issued recently the Chancellor has directed the universities to make permanent appointment of principals against all vacant posts through Bihar Public Service Commission.

Filling the communication gap

Since the Punjab Agricultural University was modelled on the Ohio State University of U.S.A., American terminology was adopted for the assessment of the work of the students. But the parents of the students who mostly belonged to the villages could not understand this assessment when a report was sent to them. They only wanted to know whether their children has passed or failed. Educated persons also could not help them because reports contained strange terms like "placed under scholastic probation", "dropped" etc. The Academic Council of the University at a recent meeting therefore, decided to convey the results to parents in simple terminology in English and also give Punjabi translation. Thus "dropped" has been changed to "Failed, name struck of the rolls" in English and suitably translated in Punjabi. "Failed but allowed to continue" has been changed to "Failed but given a chance to improve" in English and again suitably translated in Punjabi. "Scholastic probation" has been changed to "poor in studies, should work hard" in English and translated in Punjabi.

To facilitate readibility, these remarks would be stamped in red ink instead of writing them down.

The Academic Council also decided that students found in possession of copying material or found using unfair means during end of trimester examination would be deemed to have failed in all the courses in that trimester.

GURU NANAK DEV UNIVERSITY
AMRITSAR

Advertisement No. 8/82

Applications are invited for the posts of Deputy Registrar on prescribed form obtainable at a price of **Rs. 2/-** *from the office of the Registrar* by making a written request accompanied by self-addressed stamped envelope of *23x10* cms. so as to reach this office by **10.9.82** alongwith crossed Indian Postal Order(s) for **Rs. 10/-** (not refundable) drawn in favour of the Registrar, Guru Nanak Dev University, Amritsar.

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REGISTRAR

News from Agril. Varsities

Modern techniques for Gur & Khandsari units suggested

Over one million tonnes of sugar is being lost every year in the three States of Punjab, Haryana and Uttar Pradesh only as a result of inadequate juice extraction in the gur (jaggery) and khandsari (raw sugar) units. Another two and half lakh tonnes are lost through "inadequate process control" during evaporation and concentration in khandsari units because these units use open pan evaporation with poor control on the process.

These are the findings of a research team headed by Dr B.S. Pathak, Professor of Eminence at the Punjab Agricultural University, Ludhiana. The project named "Energy Economics of Sugarcane Processing Technologies in Northern India" is part of a larger project called "Energy Agriculture" undertaken in collaboration with the Indian Council of Agricultural Research.

The research team has suggested that the operation of *Gur* and *Khandsari* plants can be considerably improved by incorporating modern techniques. More complete juice extraction is the first requirement in this direction. Use of 6-roller mills in 'gur' units of 20 tonnes per day capacity or more and 9 roller mills in all 'khandsari' plants have been recommended by the team to improve the juice extraction levels.

Improvements in the furnace and use of triple pan evaporation in place of single pan evaporation is suggested for all 'gur' units to economise on fuel and ensure processing of the enhanced quantities of juice with the available bagasse.

The team has observed that the furnace of 'gur' and 'khandsari' units is poorly designed and can burn only dry bagasse. Bagasse drying requires dry and sunny weather. The 'gur' and 'khandsari units, therefore, close down in cloudy and rainy weather making the operation intermittent and reducing the number of operating days during the crushing season.

In the use of energy the researchers found that the commercial energy cost per 100 tonnes of sugarcane in the case of diesel engine operated 'gur' units and in the case of both electric motor and diesel engine operated 'khandsari' units is much higher compared to the sugarcane processed in the refined sugar mills. The term Commercial energy includes things like diesel oil and electricity, fertilizeos, plant protection chemicals and machinery required for growing sugarcane. Most of the electro-mechanical energy requirements of refined sugar plants are met from in-plant generation of electricity.

Buffaloe Research Centre at HAU

A buffaloe Research Centre has been set up in the department of Live-stock Production and Management at Haryana Agricultural University (HAU) with a budget allocation of about Rs. 10.38 lakhs for the year 1982-83. Dr. Daya Singh Balaine, Dean College of Animal Sciences, disclosed that this experimental station will have all physical facilities including a good sized buffaloe herd, proper housing and land for fodder production.

As the murah buffaloe is the best breed of buffaloes in the world and Haryana is its natural habitat, the HAU buffaloe centre will conduct discipline wise research on murah buffaloe. The objective is to bring an overall improvement in productivity by systematic and continuous study on the genetic evaluation and allocation of breeding. Studies on nutrient utilisation and feed conversion efficiency for growth and milk production will also be conducted. The centre will also conduct researches on re-production and artificial insemination and milk synthesis mechanism.

Dr. D.S. Balaine said that initially it is proposed to start a unit with 100 milking buffaloes. But over a period of four to five years the unit would be expanded to an approximate strength of 400 buffaloes to meet the requirements of conducting research on various aspects of buffaloe production.

HAU evolves new X-Ray techniques

The veterinary scientists of the Department of Surgery and Radiology of Haryana Agricultural University (HAU) have, for the first time, evolved two new X-ray techniques for improved diagnosis of various diseases and internal disorders in farm animals. These techniques would be useful because as yet simple x-rays of heavy abdomen of big farm animals with a large stomach was not possible.

In one technique evolved for the diagnosis of various diseases of urinary system, particularly stone formation, an injection of air or oxygen into the abdomen is combined with an injection of drug through which the X-rays do not pass. Now it is possible to visualise clearly the kidney, and other parts of the urinary tract of large animals like cattle and buffaloes.

In the other technique too a mixture of air or oxygen with drug injected into the abdomen for visualisation of the various organs like liver, urinary system and all parts of the stomach. Now tumour growth and obstructions in these organs will be easily diagnosed.

HAU proposes pulses cultivation

The scientists of Haryana Agricultural University (HAU) have indentified a new pulses belt in Haryana. Dahian, Dharuhera, Kanina and Palhawas villages of Rewari area constitute this belt which the scientists say is most suitable for pulses growing.

According to Dr. M.S. Kairon, Prof. & Head Department of Agronomy who visited the area with a team of scientists recently said that all the characteristics which are helpful for pulse cultivation are found in the newly identified belt. It has sweet ground water and good soil texture which are necessary for pulses.

The State Department of Agriculture has decided to assist the farmers in providing fertilizers, seeds, insecticides, and other implements.

This work of encouraging pulse production in the State is being under-taken under the operational Research Project on pulses financed by Indian Council of Agricultural Research.

News from Abroad

New wind-powered generator developed in Australia

Engineers of the Australian Defence Science and Technology Organisation are developing a a new type of wind-powered electricity generator which has potential for use on farms and for communications repeater stations in remote areas.

It is being developed initially for use by the Australian Army as it could meet its need for a transportable generator to power field signals equipment.

The system needs no fuel, can easily be dismantled and is reliaable enough to operate unattended for several months at a time.

The new equipment is based on the Darrieus turbine, a design which uses upright vanes moving in a circular path about a vertical axis. The vertical blade system does not need turning into the wind like multi-blade or propeller-driven generators and operates generating equipment which can be placed at ground level for easy access.

Designed by two mechanical engineers, Mr M.L. Robinson and Mr. W.R. Crook, at the Defence Research Centre at Salisbury, South Australia, the equipment can provide enough electricity for a small Army field communications centre. The turbine, measuring 3.7m by 3.7m (12ft by 12 ft), can be dismantled easily and carried in a truck.

Mr Robinson, who works for the Weapons Systems Research Laboratory and whose speciality is aerodynamics, applied existing aerodynamic theories to the Darrieus type of wind turbine and predicted its performance in various wind conditions.

His research provided the data for his colleague, Mr Brook, of the Advanced Engineering Laboratory, to design a turbine power generating system to function with an output of one KW (1.34hp) at wind speeds above 15 knots.

An average output of one KW is enough for the Army's field signals needs.

An average Australian household in remote areas used an average power of 0.8 KW (1 hp) and a capital city household averages between 1.5 and 2 KW (2 and 2.7 hp) excluding heating.

The turbine's blades are made of aluminium alloy to conform precisely to aerodynamic requirements and to provide a high stiffness-to-weight ratio. They cost $A30 each, greatly reducing the cost of the equipment which, if made in quantity, is expected to compete with established propeller-type wind generators.

The Darrieus wind turbine concept, named after its French inventor, is more than 50 years old. The equipment developed in South Australia includes many refinements and advances over the original design.

The alternator and the electrical control, still in development, are technologically advanced. The alternator is of special design for low-speed operation and direct coupling to the turbine. The control is based on a microprocessor to ensure high system efficiency." [**Courtesy** : ***Australian High Commission***]

● The President of India, Giani Zail Singh, will inaugurate the IX Asian Games on 19th November, 1982 at the Nehru Stadium in New Delhi.

● The Model Town Stadium in North Delhi built in the early 70s has now been renovated for conducting the preliminary Football matches as part of the IX Asian Games. The Stadium built on a 16-acre piece of land has a seating capacity of over 11,000. The pavillion itself is a 2-story structure.

● 29 countries have confirmed their participation in the IX Asian Games. Acceptance for participation is expected from 3 more countries, viz, Nepal, Brunei and Lebanon. The largest number of countries which participated earlier in Asian Games was in 1978 when it was held in Bangkok and in which 25 countries participated. The IX Asiad now holds the record in this respect.

● A Sports Medicine Seminar will be organised at NIS, Patiala from 6th to 10 September, 1982. The orientation course is expected to be attended by about 100 doctors who will be deployed during the Asian Games.

● Trial games for the IX Asiad will be held from 12th to 20th September, 1982. The trial games will be restricted to Indian teams. Approximately a sum of Rs. 27.61 lakhs will be spent on the trial games.

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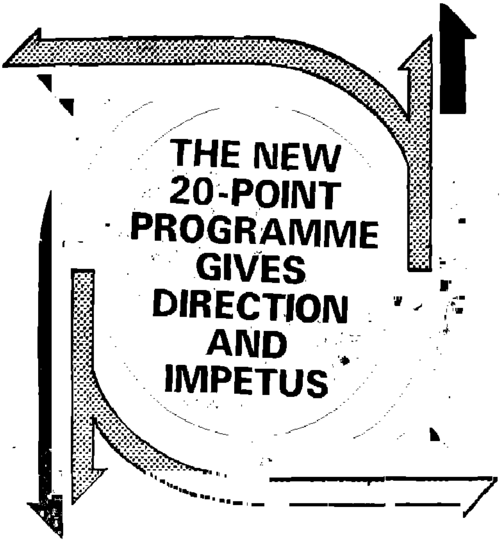

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A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Statistics

1. Vidwans, Sheela Ashok. Some mathematical problems in operations research and their applications. M.S. University of Baroda. Dr. A.G. Phatak.

Physics

1. Ahluwalia, Pardeep Kumar. Crystalline field effects in metals. Himachal Pradesh University. Dr. K.C. Sharma, Department of Physics, Himachal Pradesh University, Simla.

2. Dhull, Jagbir Singh. Relaxation studies of amides at microwave frequencies. Himachal Pradesh University. Dr. D.R. Sharma, Department of Physics, Himachal Pradesh University, Simla.

3. Mondal, Roomy. Plasma Physics. University of Delhi. Dr. M.P. Srivastava, Department of Physics and Astrophysics, University of Delhi, Delhi.

4. Muraleedharan, V. Star activity solar wined and their terrestrial relations. University of Kerala. Dr. S.R. Prabhakaran Nair, Department of Physics, University of Kerala, Trivandrum.

5. Pawar, Sanjiwani Kirtiwanrao. Conversion and storage of solar energy through PEC cells. Shivaji University. Dr. S.H. Pawar, Department of Physics, Shivaji University, Kolhapur.

6. Sharma, Sukh Dev. Quantum electrodynamics of strong Coulomb field. Himachal Pradesh University. Dr. R.P. Bajpai, Department of Physics, Himachal Pradesh University, Simla.

7. Sharma, Vijay Kumar. A study of elementary excitation in amorphous magnetic systems. Himachal Pradesh University. Dr. K.C. Sharma, Department of Physics, Himachal Pradesh University, Simla.

8. Sharma, Vineet Kumar. Study of fast neutron behaviour in materials of interest in fast breeder reactor. University of Delhi. Dr. Feroz Ahmed, Department of Physics, University of Delhi, Delhi.

Chemistry

1. Bansal, Mahesh Chand. Chemistry of natural products. University of Delhi. Dr. D.K. Bhardwaj, Department of Chemistry, University of Delhi, Delhi.

2. Gupta, Surinder Mohan. Isolation and synthesis of natural polyphenolic compounds. University of Delhi. Dr. A.C. Jain, Department of Chemistry, University of Delhi, Delhi.

3. John, K.T. Advances in the chemistry of hydroxamic acids. M.S. University of Baroda. Dr. Y.R. Agarwal.

4. Kishore, Ramchandran. Synthesis of pyrethroids from 3-carene. M.S. University of Baroda. Dr. Sukhdev.

5. Thakkar, Dinesh Muljibhai. Studies in liquid crystals. M.S. University of Baroda. Prof. K.N. Trivedi.

6. Venkata Ramana. K. Electrochemistry of molten salts. University of Delhi. Prof. Harish C. Gaur, Department of Chemistry, University of Delhi, Delhi.

7. Yogendra Kumar. Coordination chemistry. University of Delhi. Dr. R.P. Singh, Department of Chemistry, University of Delhi, Delhi.

Earth Sciences

1. Manjrekar, Durgashankar C. Geology of cainozoic rocks around Naliya, Dist. Kachcha (Gujarat) with special reference to stratigraphy and sedimentology. M.S. University of Baroda. Dr. D.R. Gadekar.

Engineering & Technology

1. Nagar, Narendra. Machine tool accuracy. University of Indore. Dr. U.R.K. Rao, Prof., Department of Mechanical Engineering, Indian Institute of Technology, New Delhi. Dr. A.J. Khandwawala, Reader, Department of Mechanical Engineering, Shri G.S. Institute of Technology and Science, Indore.

2. Verma, K.S. Use of waste steam for improving the output and performance of stationary gas turbine plants. University of Indore. Dr. A.J. Khandwawala, Prof., Department of Mechanical Engineering, Shri G.S. Institute of Technology and Science, Indore.

BIOLOGICAL SCIENCES

Biochemistry

1. Rao, Radhakrishna T. Studies on inositol phosphate hydrolysis in rat intestine. M.S. University of Baroda. Prof. C.V. Ramakrishnan, Head, Department of Biochemistry, M.S. University of Baroda, Baroda.

2. Rattaiah, Katragadda Subbarao. Studies on iron chelates and their effect on iron absorption. M.S. University of Baroda. Dr. B.S. Narasinga Rao.

3. Shah, Girish Manjulal. Molecular action of the environmental carcinogen benzo (a) pyrene and the factors modulating the same. M.S. University of Baroda. Dr. P.K. Bhattacharya.

Botany

1. Damodara, Sreedhar S. Tissue culture studies with some economically important plants. M.S. University of Baroda. Prof. A.R. Mehta.

2. Lall, Rajiv Rashbihari. In vivo and in vitro studies on solasodine production in solanum species. M.S. University of Baroda. Prof. A.R. Mehta.

Zoology

1. Mehan, Surinder Jit Kaur. Control of metabolism in vertebrates. M.S. University of Baroda. Dr. Bonny Pilo.

2. Patel, Haresh Ramubhai. Study of functional aspects of mammalian reproductive organs. M.S. University of Baroda. Dr. P.M. Ambadkar.

3. Patel, Meena Manubhai. Certain morphological, physiological and endocrine studies on vertebrates. M.S. University of Baroda. Dr. A.V. Ramachandran.

Medical Sciences

1. Chatterjee, Ram Gopal. Role of heterologous and homologous aortal collagens in the pathogenesis of experimental atherosclerosis study in rhesus monkeys. Panjab University. Dr. R.N. Chakravarty, Assoc. Prof. & Head, Department of Experimental Medicine, Post-Graduate Institute of Medical Education and Research, Chandigarh.

2. Giridhar, Rajani. Spectrophotometric studies of drugs and pharmaceuticals. M.S. University of Baroda. Dr. Y.K. Agarwal.

3. Indira Devi, S. Study of hearing levels and speech problems in different age groups in school going children. University of Kerala. Dr. P. Sukumaran, E.N.T. Department, Medical College, Trivandrum. Dr. B.R. Prabhakaran Nayar, E.N.T. Department, Medical College, Trivandrum.

4. Master, Dilip kumar Champaklal. Chromosoma studies from aminiotic fluid cell cultures in human beings. M.S. University of Baroda. Dr. H.C. Srivastava.

5. Trivedi, Bharati Jayanti lal. Blood pressure lowering activity of dopamine receplot agonists. M.S. University of Baroda. Dr. O.D. Gulati.

Agriculture

1. Mishra, Ram Kripal. A study of phytotoxicity in wheat varieties and weed flora of Malwa tract, by new chemical herbicides. University of Indore. Dr. Y.M. Upadhyaya, Wheat Breeding-cum-zonal Coordinator, Wheat Breeding Sub-station, Indian Agricultural Research Institute, Indore.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Aggarwal, Raghubir Singh. On some special purpose error-correcting/protecting codes. University of Delhi.

2. Bezboruah, Amala. Studies in the arithmetization of consistency statements in certain first order formal systems. Gauhati University.

3. Chandwani, Gopichand Narayandas. A study of integral transforms and special functions with applications. Ravishankar University.

4. Madhusudhana Rao, J. Contributions to fixed point theory. Nagarjuna University.

5. Nayak, Narendranath. Some properties of random Fourier Stieltjes series and a class of random algebraic polynomials. Sambalpur University.

6. Raju, K. Venu. Some contributions to the theory of semigroups and semirings. Sri Venkateswara University.

7. Thakur, Samajh Singh. Some problems *in topology*. University of Saugar.

Statistics

1. Singh, Netrapal. Theory of extreme values and its application to flood control. Haryana Agricultural University.

Physics

1. Arora, Sushil Kumar. Investigation of photoelectric absorption cross sections for intermediate and high 'Z' elements. Punjabi University.

2. Padmanabhan, V. Role of radio nuclide imaging and radio therapy treatment, techniques in the management of cancer patients: Clinical and physical studies. University of Kerala.

3. Pathak, Shankar Prasad. Characteristics of the semidiurnal variation of cosmic ray intensity. Awadhesh Pratap Singh University.

4. Ramachandra Reddy, A. Preparation, structural and magnetic characterization of gadolinum iron garnet (GdIG) systems. Kakatiya University.

5. Roy, Keya. Some studies on bioconduction. I.I.T., Delhi.

6. Sadanandam, J. X-ray studies on thermal expansion. Osmania University.

7. Salim Ahmad. Experimental investigation of Bremsstrahlung accompanying radiative interaction of beta particles with matter. Punjabi University.

8. Sekhon, Satpal Singh. Mossbauer studies in lead borate glass system doped with ferric oxide. Punjabi University.

9. Sham Lal. Determination of integral incoherent scattering cross sections of photons from bound electrons. Punjabi University.

10. Sharma, Krishan Kumar. Studies on backscattering of beta particles from matter. Punjabi University.

11. Syamaprasad, C.P. Electrical properties and phase transitions in some ammonium containing ferroelectrics. University of Cochin.

12. Tripathi, Ashutosh Kumar. Transport and magnetic properties of transition and rare-earth metal compounds. University of Gorakhpur.

13. Ved Parkash. Application of collective model to magnetic dipole moments of odd-A and odd-odd neclei. Punjabi University.

14. Venkateswara Rao, Donepudi. Experimental studies on the atomic photo effect and incoherent scattering of low energy photons. I.I.T., Kharagpur.

15. Vyas, Dilipkumar Dhanvantrai. Study of diglycine sulfate and triglycine sulfate single crystals. M.S. University of Baroda.

16. Yatindra Singh. Lattice dynamics of noble and transition metals. University of Bihar.

Chemistry

1. Adinarayana, Saragadam. Kinetics and mechanism of substitution reactions of some chromium (III) comolores. Andhra University.

2. Bharat Kumar, B. Complex formation with heterocyclic ligands. Osmania University.

3. Chakrabarti, Jaydeb. Studies *on transitional metal complexes*. I.I.T., Kharagpur.

4. Dutta, Deepak Kumar. Physico-chemical studies of some metal chelates. Nagpur University.

5. Jagan Mohan Rao, L. Chemical constituents of Anisomeles ovata R. Br. Nagarjuna University.

6. Jain, Kailash Chandra. Thermogravimetric and other physico-chemical studies on some metal dithiocarbamates. University of Delhi.

7. Krishnankutty, K. Metal chelates of ortho-substituted azo compounds. University of Calicut.

8. Mahapatro, Dibakar. Studies in catalysed and uncatalysed reactions. Berhampur University.

9. Panday, Bharat Vijay. Studies in photo-oxidation of amines phenoxamine and hydroxydiphenylamines. Punjabi University.

10. Pitcha Rao, Yarramareddy. Physico-chemical and thermodynamic investigations of some binary liquid mixtures. I.I.T., Delhi.

11. Purohit, Hemant Kumar. Radio tracer studies in carrying of cobalt (II) and zinc (II) on selected solids. I.I.T., Delhi.

12. Ralhan, Renu. Application of physical methods to the analysis of essential oils derived from the plants of labiatae, haemodoracese and cutliferae and the study of their bactericidal power. Awadhesh Pratap Singh University.

13. Satyanarayana, Gutta Omkara Sugnana Veera. Synthetic studies on bridged-ring and condensed cyclic systems. University of Calcutta.

14. Sethi, Manohar Lal. Chemistry of natural products. University of Jammu.

15. Sharma, Sita Ram. Synthesis of beta-lactams and heterocyclic derivatives. I.I.T., Kharagpur.

16. Shukla, H.K. Studies on antitubercular drug potentials. Bhavnagar University.

17. Subhedar, Yashodhara. Synthesis and spectral studies on lanthanide complexes. Nagpur University.

18. Surendra, Latha. Studies on fluoroperoxo and oxofluoro complexes of niobium and tantalum. I.I.T., Delhi.

19. Varma, Yashbir Singh. Spectrophotometric investigations on binary and ternary complexes of some transition metal ions. University of Delhi.

Earth Sciences

1. Chakrabarti, Amares. On the utilisation of numerical methods in the interpretation of potential field data. I.I.T., Kharagpur.

2. *Roychaudhuri, Asok Kumar. Late cretaceous-early tertiary foraminiferal biostratigraphy of the eastern part of Khasi-Jaintia Hills, Meghalya: Eastern India.* University of Calcutta.

3. Subba Rao, Vaka. Mineralogy, geochemistry and genesis of bauxite deposits of Sapparla Area, Visakhapatnam District, Andhra Pradesh. Andhra University.

4. Syed Nizamuddin. Atomspheric electric generators. Andhra University.

Engineering & Technology

1. Goyal, Sushil Kumar. Solution of inverse problems in groundwater modelling. I.I.T., Delhi.

2. Kesavan Nair, N. Evaluation of eddy current losses in solid ferromagnetic cores subjected to two alternating magnetic fields. I.I.T., Kharagpur.

3. Kowsar, Nishath. Studies on the amylase and glucosei somerase production by streptomyces. University of Mysore.

4. Mishra, Shiva Shanker. Effect of stress path on the stress-strain volume change behaviour of some granular soils. I.I.T., Delhi.

5. Sharma, J.K. Some analytical investigation on a four stroke diesel engine for achieving high specific output. I.I.T., Delhi.

6. Singh, Usha. Analysis of some solar passive concepts. I.I.T., Delhi.

7. Sudhakar, R. Some fast computational algorithms for signal processing. I.I.T., Delhi.

8. Varshney, Sumant. On the control of linear time invariant and discrete time multivariable systems. I.I.T., Delhi.

BIOLOGICAL SCIENCES

Anthropology

1. Ghosh, Reita. Chromosome heteromorphism in two North Indian populations—Rajputs and Punjabis with reference to QFQ, CBG and 5-bromodeoxyuridine/33258 Hoechst techniques. University of Delhi.

Biochemistry

1. Chaudhuri, Amita. Studies on extracellulor lysine production by soil isolated bacteria. University of Calcutta.

2. Khan, Aqueel. Effect of different levels of Bengal gram protein on the metabolism of iron, copper, zinc and calcium on albino rats. Nagpur University.

3. Nagda, Kusum Keshri. The effect of cerebrospinal fluid on blood coagulation. Shivaji University.

4. Sarkar, Gobinda. Characterization of mitochondrial protein and nucleic acid synthesis in plants. University of Calcutta.

Botany

1. Akhter, Farzana. Studies on the changes in the rhizosphere micoflora and root exudation of Pennisetum typhoides (Burm. f) Stapf. & Hubb. as influenced by foliar sprays. Smania University.

2. Chakrabarti, Nalinikanta. Selectivity of herbicides for weeds of jute based cropping system of Tripura. University of Calcutta.

3. Fasih-Uz-Zaman. Genetic studies on some of the cooking and nutritive qualities of cultivated rice, Oryza sativa L. University of Bihar.

4. Joshi, Sushila. Microbial synthesis of amino acids and proteins. Ravishankar University.

5. Khare, P.D. Influence of modern herbicides on the growth, development and biomass mapametrers of two species of fodder, sorghum and associated weed flora. University of Jabalpur.

6. Koduru, Uma Devi. Investigations into male sterility and dwarfism in pearl millet, Pennisetum americanum (L) Leeke. Andhra University.

7. Kurada, Aswani Kumari. Rate of cell development during early seed formation in pearl millet, Pennisetum americanum (L) Leeke. Andhra University.

8. Malana, Maithili. Impact of burning on the phytosociology and primary production of a tropical grassland. Berhampur University.

9. Mallikarjunappa, R.S. Studies on the flora of Kushal Nagar, Coorg District. University of Mysore.

10. More, Vijaya Haribhau. Physiological studies in Sorghum. Shivaji University.

11. Chandrasekhara Naidu, Kandibella. Embryological investigations in cucurbitaceae and begoniaceae. Andhra University.

12. Palharya, Jamna Prasad. Study of the procambial system in the embryos of certain members of the family compositae. University of Saugar.

13. Rai, M.K. Studies on some Indian sphaeropsidales with special reference to Phoma and related fungi. University of Jabalpur.

14. Renuka, C. Morphological studies in palmae. University of Calicut.

15. Sarma, Keshab Chandra. Induction of root formation in cuttings by the application of plant hormones. Gauhati University.

16. Shivakumar, P.M. Cytotaxonomical and biosystematical studies in rubiaceae. Karnatak University.

17. Singh, Satya Deo. Flora of Ghazipur. University of Gorakhpur.

18. Vasudevamoorthy Kumma Muri. Studies on cytogenetic aspects [illegible] among some spinous solanum [illegible]

Zoology

1. Bradoo, Bhushanlal. Life history and bionomics of Uloborus ferokus Bradoo (Araneae: Uloboridae): A commensal of social spider Stegodyphus sarasinorum Karseh. Bhavnagar University.

2. Chilumuri, Uma Devi. Studies on the anatomy and histochemistry of the South Indian apple snail Pila virens (Lamarck). Andhra University.

3. Dhande, Ramesh Ramchandra. Studies on some aspects of endocrine regulation of calcium and inorganic phosphate balance in Indian grey quill, Coturnix cournix Coturnix (Linnaeus). Nagpur University.

4. Lakshmipathi, V. Some aspects of enzyme variation in three amphibian species. Kakatiya University.

5. Mahavir. Olfactory physiology of Apis florea F. with reference to repellanis. Haryana Agricultural University.

6. Patil, Vasantrao Shripatrao. Studies on mucosubstances in ovaries and associated female reproductive organs of chiroptera. Shivaji University.

7. Rajender, K. Effect of certain insecticides on the normal metabolism of nervous tissue and haemolymph of cockroach, Periplaneta americana. Kakatiya University.

8. Singh, Raghvendra Pratap. Role of certain environmental and physiological factors determining the establishment of Earias fabia Stoll (lepidoptera: Noctuidae). University of Gorakhpur.

9. Vasantha, K. Cytogenetical studies on some Indian rodents. University of Delhi.

10. Vemananda Reddy, G. Studies on the effect of prolactin on the reproductive physiology of prepuberal male albino rats. Sri Venkateswara University.

Medical Sciences

1. Arya, Mandarmala. Histochemical, biochemical and neurohistological observations on human vitiliginous skin. University of Calcutta.

2. Mathew, T. Lazar. Role of chemoreceptor sensitivity and autonomic nervous system in adaptation to altitude. University of Delhi.

3. Ray, Udaysankar. Effect of altitude and cold on autonomic nervous system in man. University of Calcutta.

4. Selvamurthy, W. Effect of high altitude on sleep behaviour. University of Delhi.

Agriculture

1. Bal, Asitranjan. Response of rice plant to saline substrates. University of Clalcutta.

2. [illegible]lchandra. Determination of yield [illegible] varieties of paddy in the tropical [illegible] and the effect of top dressing of nitrogen at various growth stages upon the yield components. University of Calcutta.

3. Bhatade, Shivraj Sangappa. Study of combining ability, gene action and genotype x environment interaction in desi cotton, Gossypium arboreum (L). Marathwada Agricultural University.

4. Chowdhury, Vijay Kumar. Induction of mutations at cellular level in mungbean, Vigna radiata. Haryana Agricultural University.

5. Panwar, Khazan Singh. Investigation on additive, dominance and epistatic variation for agronomic traits in wheat, Triticum aestivum L. Himachal Pradesh Krishi Vishwavidyalaya.

6. Prakash, N.A. Studies on root parasitism and nutrition of sandalwood, Santalum album L. University of Agricultural Sciences, Bangalore.

7. Rajagopal Reddy, C. Screening of pesticides for their antitranspirant property of crop plants under water stress and their possible antifungal property (in vitro). Sri Krishnadevaraya University.

8. Singh, Chandreshwar. Comparative studies on the effect of different root stocks on growth, fruit yield and quality of Nagpur santra, Citrus reticulata Blanco. Birsa Agricultural University.

9. Subhash Chand. Studies on the agronomic practices to increase the productivity of linseed in rice-linseed rotation in Kangra valley of Himachal Pradesh. Himachal Pradesh Krishi Vishwavidyalaya.

Veterinary Science

1. Dhodapakar, Bhalchandra Shankar. Pathology of arthus reaction in the chicken. J.N. Krishi Vishwavidyalaya.

2. Sreedharan, S. Inheritance of body size measures in relation to production efficiency in buffaloes. Panjab University.

3. Thakur, Ravinder Singh. Associative efficiency of by-product feeds as sources of energy and protein in broiler diets. Haryana Agricultural University.

4. Tiwary, Birendra Kumar. Immunobiology of mycoplasma gallisepticum infection in immunocompromised chickens. Haryana Agricultural University.

5. Verma, Subhash Prasad. Studies on seroprevalence in relation to abortion, diagnosis and chemotherapy of ovine toxoplasmosis. Haryana Agricultural University.

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APEID, Bangkok. *National strategies for curriculum design and development: Report of the National Seminar. Canberra,* 1979. Bangkok, Unesco, 1980. 78p.

————————. *Universalizing education: Selected innovative experiences: New techniques for preparing educational personnel.* Bangkok, Unesco, 1980. 138p.

————————. *Vocational and technical education: Development of curricula and instructional materials with focus on mechanical and civil/building subjects; report of the technical working group, Seoul,* 1979. Bangkok, Unesco, 1980. 112p.

APEID Regional Seminar for Preparing Guidelines for Developing Innovative Examination Tools, Methodologies and Procedures, Bangkok, 1979. *Evaluating pupil development: Productive skills training; moral education.* Bangkok, Unesco, 1980. 35p.

APEID Sub-Regional Workshop on Designing and Developing Innovative Science Curriculum and Instructional Materials, Colombo, 1979. *Linking science education to real life: Curriculum design, development and implementation; report.* Bangkok, Unesco, 1979. 90p.

Barton, Len and Walker, Stephen. *Schools teachers & teaching.* Sussex, Falmer, 1981. 358p.

Brym, Robert J. *Intellectuals and politics.* London, Allen and Unwin, 1980. 87p.

Collett, Peter, ed. *Social rules and social behaviour.* Oxford, Basil Blackwell [c1977] 185p.

Dwivedi, S. *Hindi on trial.* Sahibabad, Vikas [c 1981] x, 347p.

Edwards, David L. *Reason to hope.* London, Collins, 1978. 252p.

Ernst, Dieter. *New international division of labour, technology, and underdevelopment.* New York, Campus Verlag [c1980] 644p.

Hayter, Teresa. *Creation of world poverty.* Delhi. Selectbook, 1982. 128p.

Kassimati, Koula. *Information in educational decision making in Greece.* Paris, Unesco, [c 1978] 10p.

Keogh, Barbara K., ed. *Advances in special education: A research annual.* Connecticut, Jai Press [c 1980] xi, 299p.

Lacey, Colin and Lawton, Denis, ed. *Issues in evaluation and accountability.* London, Methuen [c 1981] x, 248p.

Lingappa, Shiva, comp. *Education and the socio-economic environment : Recent developments in Botswana.* Paris, Unesco [c 1977] 16p.

————————. *Education and the socio-economic environment: Recent developments in Burundi.* Paris, Unesco [c 1977] 18p.

————————. *Education and the socio-economic environment: Recent developments in Lesotho.* Paris, Unesco [c 1977] 17p.

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————————. *Education and the socio-economic environment: Recent developments in the Republic of Maldives.* Paris, Unesco [c 1977] 9p.

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MACMILLAN ENCYCLOPEDIA. London Macmillan, 1981 136p.

Maude, Barbara. *Turning tide: Towards the post-surplus society.* London, Faber and Faber, 1975. 185p.

McConnell, Taylor. *Group leadership and self-realization.* London, Leviathan House [c 1974] xi, 210p.

Millman, Jason, ed. *Handbook of teacher evaluation.* Washington, Sage [c 1981] 356p.

Mishan, E.J. *Cost-benefit analysis.* London, Allen and Unwin, 1981. xx, 454p.

Ostergren, Bertil. *Management of change in Swedish higher education.* Paris, Unesco [c1979] 58p.

Pratt, David. *Curriculum; Design and development.* New York, Harcourt Brace [c 1980] xiv, 503p.

Reddy N.Y. *Values and attitudes of Indian youth: A psychological study of rural and urban students.* Delhi, Light & Life, 1980. vi, 244p.

Rex, John *Social conflict: A conceptual and theoretical analysis.* London, Longman [c 1981] 136p.

Rybalkov, L. and Soloviev, E. *Educational development and forecasting in socialist societies: Reflection on the future development of education.* Paris, Unesco, 1980. 31p.

Scott, F.B. *Education in Barbados: Development policies, problems and prospects.* Paris, Unesco [c 1980] 34p.

Shils, Edward. *Tradition.* London, Faber and Faber, 1981. viii, 334p.

Smith, Samuel. *Ideas of the great educators.* New York, Barnes & Noble, 1979. 200p.

Stybe, Svend Erik. *Copenhagen University: 500 years of science and scholarship.* Copenhagen, Ministry of Foreign Affairs. 219p.

Tunsiri, Vichai. *Use of information in decision-making for educational change in Thailand.* Paris, Unesco [c 1978] 47p.

Unesco Regional Office for Education in Africa, Senegal. *Story of a prototype in Senegal.* Paris, Unesco [c 1978] 32p.

Wadsworth, Barry J. *Piaget's theory of cognitive development: An introduction for students of psychology and education.* London, Longman [c 1979] xvi, 189p.

White, John. *Aims of education restated.* London, Routledge & Kegan Paul, 1982. xi, 177p.

Wijemanne, E.L. Educational reforms in Sri Lanka. Paris, Unesco [c 1978] 15p.

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QUALIFICATIONS: (i) A postgraduate degree in any branch of Engineering, geosciences or science (including Maths Statistics) with consistently good academic record (Essential but partially relaxable in the case of candidate otherwise qualified); (ii) Experience with respect to minerals and mining industry (in teaching/research/industry/Govt. Organisation) for not less than 10 years, including at least 5 years in a high position; (iii) Research degree, and/or Fellowship of a professional institution of standing and/or technical publications of high merit (desirable).

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7. One Senior Scientific Assistant for the Department of Chemistry, Fuel & Mineral Engineering (Rs. 550-900)

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8. One Technical Assistant (Rock Mechanics) for the Department of Mining Engg. (Rs. 425-700)

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QUALIFICATIONS: (i) M.Sc. in Chemistry or Diploma in Ceramics or equivalent; (ii) In case of diploma holders, two years experience in a recognised ceramics laboratory (Essential).

11. One Scientific Assistant (Museum) for a one-year leave vacancy for the Department of Applied Geology (Rs. 425-700)

QUALIFICATIONS: (i) M.Sc. in Geology with good knowledge of rocks, minerals and fossils (Essential), or (ii) B.Sc. (Hons.) in Geology with two years experience in a Department of Geology or Geology Museum (Essential).

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QUALIFICATIONS: (i) A good Bachelor's degree (*Essential); (ii) Post-graduate degree or diploma* (of at least one-year duration) in Library Science, with at least 60% marks (Essential); (iii) One year's experience in a technical library of standing (Essential); (iv) knowledge of technical processing of documents and familiarity with UDC, AACR (Essential) (v) Good handwriting and knowledge of typing (Desirable).

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Other things being equal, preference will be given to SC/ST candidates.

Further details and prescribed application forms are obtainable from the Registrar, Indian School of Mines, Dhanbad 826004, on sending a self-addressed envelope of size 30 cm x 12 cm affixed with postage stamps of the value of **Rs. 4.05** only. Completed application form should reach the Registrar on or before **31st August 1982.**

CANVASSING IN ANY FORM WILL BE TREATED AS A DISQUALIFICATION.

S.P. Varma
Registrar

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Knowledge of Urdu and Hindi is essential for non-teaching posts. D.A., C.C.A., H.R.A., P.F., Gratuity, Pension and other benefits will be given according to Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of the Selection Committee in exceptional cases.

One Medical Officer Grade Rs 700-1300 M.A. Ansari Health Centre (Permanent),

Qualifications: M.B.B.S. degree from a recognised University. Three year's experience after passing M.B.B.S. Candidate with post-graduate qualification or hospital experience will be preferred. Adequate knowledge of Urdu and Hindi. N.P.A. admissible according to rules in case permission for private practice is not granted. Free unfurnished accommodation will be provided subject to the payment of their own electricity and water charges.

One Pharmist—Grade: 330-560 : Ansari Health Centre (Permanent)

Qualification

(a) Matriculation or its equivalent.

(b) Must have passed the pharmists (Compounder's) Course from a recognised Institution and must be a registered pharmist as required under Pharmacy Act-1948.

(c) Two years experience in a hospital,

(d) Adequate knowledge of Urdu and Hindi.

One Reprographic-cum-store clerk Grade : 330-560 : Dr. Zakir Husain Lib.

I Educational-Essential

1. Higher Secondary or its equivalent from a recognised Univ./Board in India.
2. National archives certificate of Training in reprography.

II. Desirable

1. Certificate in Library Science from a recognized Association /University.

One Cartographic Asstt. Grade : 425-700 (Deptt. of Geography)

Educational-- Essential

1. B.A./B.Sc. with Geography as optional subject at Hons. or pass level with Second Class.
2. A Diploma in Cartography with first or High Second Class.

Desirable

Atleast 5 years experience in Cartography Lab. of University level.

One Steward : Grade : 380-560.

Qualifications:—A law graduate with previous experience of 5 years in matter relating to moveable & Immovable property, purchase of stores, maintenance of store accounts etc. Proficiency in noting and drafting in Urdu and English.

Desirable

Knowledge of Hindi.

Ikram Husain Khan
REGISTRAR

JADAVPUR UNIVERSITY
CALCUTTA-700032
Dated July 20, 1982.

Employment Notification No. A2/C/6/82

The University invites applications *in the prescribed form for the following posts:*

1. **Professor** - Geological Science - *One post.*
2. **Reader** - Geological Science - *One post.*

Qualifications for Professor Post

Essential

(i) Research degree of Doctorate standard or published work of an equally high standard.

(ii) Consistently good academic record with at least high Second Class Master's degree in the relevant subject of Indian Universities or equivalent.

(iii) Ten years' teaching/research experience of which at least five years must be in teaching at Post-graduate level.

(iv) Proven ability to guide research.

Qualifications for Reader Post

Essential

(i) Research degree of Doctorate standard or published work of an equally high standard.

(ii) Consistently good academic record with at least high Second Class Master's Degree in the relevant subject of Indian Universities or equivalent.

(iii) Five years' research or teaching experience of which at least three years must be in post-graduate level.

Explanatory note in respect of all kinds *of posts* at serial nos. 1-2

Candidates should either have an average of 55 of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations or 50% marks in each of the two examinations separately. The essential qualifications may be relaxed, provided that the *Appointment Committee* is of the view that a candidate is otherwise suitable for the post as *per evidences cited by him*

Desirable Requirement for Professor Post

Record of continued research activity as evidenced by the publications in national and international journals of repute and in the form of books and journals e.c.

Desirable for Reader Post : Ability to guide research.

Scales of Pay

Professor - Rs. 1500-60-1800-100-2000-125/2-2500/-.

Reader *Rs. 1200-50-1300-60-1900/-.*

Last date of receiving application is **30th August, 1982.**

Application forms are obtainable from *the University* office during working hours on payment of **Rs. 2/-** or by post on payment of **Rs. 2/-** ***Re.*** **1/-** as postal charges. No travelling allowance is admissible to candidates called for interview. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their *application through* proper channel. Choice of the Appointment Committee will not necessarily be confined to applicant only. Canvassing *any* form will disqualify a candidate.

REGISTRAR

SARDAR PATEL UNIVERSITY
BALLABH VIDYA NAGAR - 388 120
(GUJARAT)
NOTIFICATION NO. EST/3 (1982-83)

Applications are invited in the prescribed forms available from the University Office on payment of Re. 1/- in cash or by *Indian Postal Order* for the following posts so as to reach the undersigned on or before **31-8-1982s.**

Sr. No.	Name of the post	Scale of pay
1.	Reader in Home Science: (Foods & Nutrition)	Rs. 1200-50-1300-60-1600-Assessment-60-1900.
2.	Lecturer each in :	
	(i) Physics (Temporary)	Rs. 700-40-1100-50-1300-Assessment-50-1600.
	(ii) Chemistry	-do-
3.	Coach General Sports : (Specialization in Volley Ball, Basket Ball)	*Rs. 650-30-740-35-810-E B-35-880-40-1040.*
4.	Mechanic Attendant :	Rs. 350-12-410-E.B-12-470-E.B-15-500.
5.	Copy Holder : (University Press)	Rs. 260-8-308-E.B-8-340-10-360-E.B-10-430

The details of the *prescribed qualifications* etc. will be supplied alongwith the application forms.

All the posts except at Sr. No. 2(i) carry the benefits of Dearness Allowance, *Provident* Fund and Gratuity or Pension Scheme as *per rules of the University.*

Preference will be given to the qualified candidates belonging to scheduled castes, scheduled tribes, Socially and Educationally and/or Economically *backward class.*

R.C. Thakkar
REGISTRAR

JADAVPUR UNIVERSITY
CALCUTTA-700032.

Employment Notification No. A2/C/8/82

Dated : 29 July, 1982.

The University invites application in the prescribed form for the following posts:

1. **Professor of Water Resources Engineering**—1 Post
2. **Professor of Bio-Engineering**—1 Post
3. **Lecturer in History**—1 Post

Qualifications for Professor Post at Serial No. 1

Essential

1. Research degree of Doctorate standard in the relevant field or published papers of an equally high standard.
2. Consistently good academic record with at least high Second Class Master's Degree in any branch of Engineering/Technology of Indian Universities or equivalent.
3. About ten years' teaching/industrial/research experience.
4. Proven ability to guide research/projects.

Specialisation for Sr. No. 1

Hydrology, hydropower, multipurpose river basin development, water quality management, water resources system engineering including economic and environmental impact assessment.

Desirable for Sr. No. 1

(i) Experience of teaching at University level.
(ii) Experience of organising laboratories/implementing R &D Schemes, execution of projects in the relevant field from a position of responsibility.
(iii) Corporate membership in recognised professional bodies.

Qualifications for Professor Post at Sr. No. 2

Essential

(i) Research degree of doctorate standard or published papers of an equally high standard in an area of Bio-Engineering.
(ii) Consistently good academic record with at least high Second Class Master's Degree in any branch of Engineering/Technology/Pharmacy of Indian Universities or equivalent.
(iii) About ten years' teaching/industrial/research experience.
(iv) Proven ability to guide research/projects.

Specialisation for Sr. No. 2

Bio-Medical Engineering/Bio-mechanics/Bio-electronics/Bio-instrumentation Bio-kinetics/Bio-materials.

Desirable for Sr. No. 2

Same as given for the post at Sr. No. 1

Qualifications for Lecturer Post at Sr. No. 3

Essential

(i) Research Degree of Doctorate Standard or published work of an equally high standard
(ii) Consistently good academic record with at least high Second Class Master's Degree in the relevant subject of Indian Universities or equivalent.

Desirable for Sr. No. 3

Two years' research or teaching experience upto Honours standard.

Specialization for Sr. No. 3

Any branch of Indian History.

Explanatory note in respect of Sr. No. 1 to Sr. No. 3

Candidates should either have an average of 55% of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately. The essential qualifications may be relaxed provided that the Appointment Committee is of the view that a candidate is otherwise suitable for the post as per evidences cited by him.

Scale of Pay

Professor—Rs. 1500-60-1800-100-2000-125/2-2500/-

Lecturer—Rs 700-40-1100-50-1600/-

Last date of receiving application is **28th August, 1982.**

Application forms are obtainable from the University Office during working hours on payment of **Rs 2/-** or by post on payment of **Rs. 2/- + Re. 1/-** as postal charge. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their application through proper channel. Choice of the Appointment Committee will not necessarily be confined to applicants only. Canvassing in any form willdisqualify a candidate. No travelling allowance will be admissible to the candidates appearing at the interview for the post of Lecturer.

REGISTRAR

BANARAS HINDU UNIVERSITY

Advertisement No. 11/1982-83

Corrigendum to earlier Advertisements

The University has advertised the posts of PROFESSORS in Biophysics, Preventive & Social Medicine and Radiotherapy & Radiation Medicine; READERS in Anatomy, Anatomy (Teratology), Obstetrics & Gynaecology, Tuberculosis & Chest Diseases, Dental Surgery, Radiotherapy (Nuclear Medicine), Ophthalmology, Psychiatry (Bio-psychiatry); LECTURERS in Paediatric Surgery, Skin & V.D., Medicine (Endocrinology), Biochemistry, Surgery (Thoracic Surgery), Anaesthesiology, General Surgery, Radiology, Bio-physics, Microbiology, Paediatrics (Post Partum Programme), Surgery (Urology), Radiotherapy & Radiation Medicine, Pathology, Pharmacology, Psychiatry through the advertisement Nos. 9/1979-80, 3/1980-81, 5/1980-81, 20/1980-81, 31/1980-81, 38/1980-81, 1/1981-82, 9/1981-82, 15/1981-82, 20/1981-82and No. 1/1982-83 in the Institute of Medical Sciences, B.H.U.

The following changes in the requirement of teaching experience of various posts mentioned above are notified as follows :

Professors: Four years as Reader in the subject.

Readers: Five years as Lecturer in the subject.

Lecturers : No teaching experience required.

Accordingly those persons who could not submit their applications earlier and are eligible in accordance with the revised requirement may submit fresh applications for the above posts.

Applications will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Orders of **Rs 7.50** in favour of the Registrar, Banaras Hindu University towards application fee. Application forms alongwith the leaflet of information will be supplied free of cost by the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005 on receipt of **Rs. 0 70 paise** stamped self-addressed envelope of 23 cm x 10 cm size. Candidates called for interview for these posts will be paid actual Railway fare by the Second Class plus reservation charges for sleeper, if paid, and or actual Bus fare from the present residence both-ways by the shortest route as per University rules. No other expenses will be paid.

Applicants may send their bio-data alongwith attested copies of all the certificates and details on plain paper alongwith the application fee of **Rs. 7.50** in Bank Draft/I.P.O. to avoid delay in case they do not get the prescribed forms in time.

Applications for each post be sent separately alongwith attested copies of certificates in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005.

Incomplete application in any respect will not be entertained for consideration. Those who are in service should apply through proper channel. M.O. or Cheque will not be accepted towards application fee.

Last date for receipt of application has been extended to **August 30, 1982**.

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University

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH SEPTEMBER 1, 1982

Dr. V.S. Jha, Former Vice-Chancellor of Banaras Hindu University, delivering the first Dr. D C. Pavate Memorial Lecture at the Karnatak University.

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UNIVERSITY NEWS

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IN THIS ISSUE

Is Semester System Suited to Us ? 549
The Community College in an Indian Setting 550

Convocation

Agricultural Education and Development 553

Campus News

Seminar on Problems and Perspective of Russian & Soviet Literature Studies at CIEFL 555
Education and Productivity 555
Workshop or Cataloguing 556
Hybrid-hydel units to be designed by Roorkee 556
Dr. D. C. Pavate memorial lecture 557
Academy of Medical Sciences at A. P. 557
Lucknow University updates PG courses 558

News from Abroad

Turkey's new Universities 559
Commonwealth Games and course in International Relations 559
Research in Progress 560
Theses of the Month 561
Current Documentation in Education 564
Classified Advertisements 565

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

What ails the University System—Examinations

G. B. K. Hooja*

This year the Principal decided that there shall be no copying in the examinations.

He appointed the seniormost teacher as the Superintendent of Examinations and summoned sufficient police force to establish discipline and to strike terror in the minds of the miscreants.

Day-1: When the students arrived to appear at the examination they were told that they would not be allowed to take any books or copies with them into the examination hall. The students protested and refused to enter the examination hall. Three tension-ridden hours of ding-dong battle between the teachers and the students.

This day the examination did not take place.

In the afternoon some students met ther Principal who persuaded them to take the examination next day, and, of course, assured them that while books and copies would not be allowed to be taken into the examination hall minor aberrations would be overlooked.

Day-2 : Students allow themselves to be searched and enter the examination hall.

Later, the Principal comes for the surprise check and discovers that the terms of agreement have not been honoured by the students. He also finds the teachers standing aloof with blinkers on their faces. Reports mass copying has been indulged in.

Day-3 : Students again boycott the examination.

Afternoon : At a meeting of the Faculty with the Vice-Chancellor the Faculty proposes adojurnment of examinations sine die. The old owl, though not so old in age, the Pro-Vice-Chancellor advises against this course of action as it would embolden the miscreants, and penalise the well-meaning students, who in any case form a majority and their parents. The advice of the old owl prevailed and it was decided to continue the examination schedule.

Day-4 : Sunday.

**Vice-Chancellor, Gurukula Kangri Vishwavidyalaya, Hardwar.*

Day-5: The examination proceeded according to schedule. The students cooperated and sat for the *Examination.*

Days-6-7: DITTO

Day-8 When the Pro-Vice-Chancellor visited the examination hall on the first floor, he was shocked to see the bundle of books being hauled up through the window by a rope for the assistance of the exminees. The design was checkmated.

It may be mentioned as background to this senario that nine years earlier a Reader in chemistry had been murdered in this college by a student who had been caught using unfair means, and the corpse of the Reader appeared to hang before the eyes of the Faculty all the time they were obliged to stand in confrontation with the students, for after all they too are human.

Two pertinent questions arise :

Question No. 1 : These students shall in course of time occupy places of responsibility, decision-making, direction and execution in society. How will they conduct themselves on such crucial occasions ?

It is well said :

Sow an act, and you reap a habit,
Sow a habit and you reap a character,
Sow a character and you reap a destiny.

The destiny of these young hopefuls and that of the nation is in the hands of their parents and teachers. What type of character is being sown in the Universities under the present dispensation ?

Question No. 2 : And what type of teachers these are ?

They are afraid to meet the students. They stand in fearful and hostile confrontation against the students who according to the Vedic injunction are supposed to be lodged in their bellies (Garbhastha). Under the present system, it may be inferred with due respect and anguish the teachers are teaching the art of cheating to the students *notwithstanding all* the laudable intentions to the contrary.

A clinical diagnosis may indicate that there are several causes leading to this malaise. A brief look at a University calender will disclose the first cause : 15th July the University opens and admissions start. 16th August to 31st March (7½ months) : period of studies, interspersed and interrupted by programmes of games and sports, academic tours, Dussehra and Diwali holidays, Sundays, casual holidays, strikes, seminars and other celebrations, etc.

Examinations are supposed to be held in April and the University stands closed for summer vacations in May and June. Thus, it may be observed that under this dispensation for 4 and a half months (April, May, June, July and first half of August) there is hardly any teaching.

When the Vice-Chancellor of the University tried to work out a time-table to see that the teachers teach at least for 200 days in a year, he found to his dismay that not more than 166 days were available for this noble purpose. In other words a work-year *of 166 days in a calendar year of 365 days !*

What do you say to this ?

In another scrutiny, he found that during the last year, classes in several subjects had been held for less than 100 days, and several students were found to have attended only 50% of these classes and some of the present marks were fictitious and faked having been obtained under duress and threat.

Is this the way of character-building and nation-building?

It has been suggested that marking of attend can should be done away with. At any rate, it would remove the tendency to indulge in cheating and to secure faked attendence and thus save young impressionable students from sowing the act of cheating.

It has also been suggested that the students may be allowed to carry books and copies into the examination hall and answer questions with the aid of books. This would save the students from sowing the acts of using unfair means and thus bemeaning themselves. This would also eliminate a potential cause of fear from the minds of the teachers and the invigilators and thus save them from humility and self-deprecation.

It has also been suggested that the value of degree should be de-emphasised. Students are known to have committed suicide or run away from their homes following failure in the examinations. If this is the character which the Uuiversity system develops, it is something to ponder over.

The educational system is expected to develop boldness, courage, fortitude, fearlessness, integrity, honesty and NOT cowardice and corruption.

Thus the necessity to delink jobs from degrees and to vocationalise school education and most importantly to spiritualise the educational ethos. In the present system there is no cognizable effort to effectuate the last but not the least important remedial measure.

Whatever ethical values students acquire are attained *if at all in the homes or by the way-side as they* grew into adulthood. We cry impotently against widely prevailing corruption and exploitation in modern society. But what exactly do we do about it?

The Vedic system enjoins upon the parents and the teachers to nurture by precept and example the young ones in the school of Yamas and Niyamas, the Yamas being non-voilence, truth, celibacy, non-theft and non-possession, the Niyamas being cleanliness, contentment, hard labour, self-study and consecration to God.

Universal values these, calculated to transform a soft society into a strong, determined nation as Dayananda envisioned India to develop. But when and where shall we be begin? ☐

Is Semester System Suited to Us?

V.S.S.M. Rao*

Higher education in India has been experimenting with the semester system, internal assessment and objective tests for more than a decade now. Often, they have been referred to as a package, the other schemes like autonomous institutions, central valuation, relevant community centres and job oriented curricular reforms, and question banks, being ancillaries to the package. But the rationale for the inter-linking of the three reforms does not seem to have been adequately explored and expounded.

Any educational reform is obviously to make the educational organisation more effective. But, unfortunately, reforms are conceived as an expediency to counter student indiscipline, economic constraints, etc. which have to be tackled by appropriate means but not under the garb of a principle of educational process.

The semester system is to bring the goal of organised educational endeavour nearer, in keeping with the modern culture of hurry and rapid changes from the distant goal of leisurely and long-term planning. Significantly, this system has its origin in the dynamic nation, United States, where the academic session is conceived in units of two semesters of autumn and spring with a short break of only a few days in between and a long summer vacation. At the higher education level, sessions are held in summer also, so that those who have no need to earn on temporary jobs in harvesting, resort parks and construction work may take courses.

This system will deliver its goods only when this spirit is reflected in the entire process of its implementation. In the U.S. admissions are processed before the scheduled date of commencement of a semester. In one day all students register their courses (choose the subjects they opt to take for the semester) and classes commence the next day.

In India the commencement date is always tentative, mostly dependent on the declaration of results in the qualifying examinations by various Boards of Examination and Universities which, again, most often do not synchronise. Then the long process of scrutiny of applications in bulk with due consideration for reservations under various categories with different norms for admissions, interviews, committees for approval etc. eats up quite a bit of the semester duration.

In the U.S. the entire examination schedule is completed within three to seven days. Here it easily takes a minimum of two to three weeks, with need for provision of study days in between examination dates and avoiding clash of examinations when different sets of optional papers are permissible for any group of students. In between, there are a large number of holidays under the Negotiable Instruments Act, State lists, University or College events, functions of students clubs, sports events, condolences, etc. A semester means six months, but academically it is limited to 4½ months and practically it may come to three months only.

Besides, the teachers have been brought up in the culture of teaching at a leisurely pace with a long warm up introductory period and culminating in an equally long revision period, the student-body in any class is heterogenous in capacity necessitating remedial or preparatory work for all, which would have been catered to separately for a selected few in the U.S. The change of medium of instruction from school to college with no provision for a rapid course to pick up linguistic competence, lack of a definite prescribed text book tailor-made for each course also retard the teaching process with necessity to dictate notes or long expositions in lectures.

To be fair, the students in Madras recently who claimed the right to copy from books in the examination on the ground that the courses had not been covered adequately seem to be justified.

Besides, the Inter-University sports programme is not geared to click with the semester pattern. Collegiate sportsmen have to suffer the handicap of inadequate preparation for the semester examination; and also have to sacrifice sports interests when their sports schedule clashes with the examination schedules which again do not synchronise even to a broad approximation even at regional level whereas the Inter-University sports calendar is obviously on an All-India basis.

We have often heard of educational administrators and political leaders pleading for the semester pattern to keep the students busy with imminent examinations, so that there will be no time for student unrest. This has proved to be naive and not based on rational logic or behaviour motives.

What is the great need for the semester pattern? After all, our admission patterns are still annual, the long summer vacation is still unpurposeful and unproductive as there is no provision for students either to earn in gainful employment or take course work in summer sessions to complete their requirements for graduation earlier than the normally stipulated period for a degree.

At best the papers prescribed for a year may be divided into two parts, one part being completed culminating in the university examination in the first half of the academic year and the other part in the second half, declaration of results being made at the end of the academic year. Students failing in any paper of the first part may be permitted a second chance at the end of the year examination schedule.

Patterns of quarters, (four sessions or year), trimesters (three sessions a year) and Trimester with summer sessions (four sessions, three of equal duration) are also followed in the space rocket culture of the United States with the main objective of enabl-

(*Continued on page 552*)

***Vice-Principal, Lakshmibai National College of Physical Education, Gwalior.**

The Community College in an Indian Setting

D. Subba Rao*

Objectives

The community college as I envisage should be altogether different type of institution. It should cater to the needs of urban or rural youth or students who want to settle in their own community and who can take their community forward by having better living standards and make bettter adjustment to the changings needs of society. The young man should be agents of social change, get the necessary vocational and educational skills to get self employed or employed in the community and become useful and worthy members of society. The ideals are the ideals of self reliance, service and sacrifice. The curriculum should include a large bit of liberal studies so that they can develop an analytical mind and begin to observe and understand the social processes in and around the society. They should be forward looking and futuristic in their planning. They should be able to create a new social order of peace, contentment, co-operation and dedication to work and share their knowledge and skills with other members of the society. They should be able to motivate the community in its literary, cultural and artistic activities. In a word they shall become the future citizens and local leaders and take their community and country forward.

Community College, its nature and function in India

The community college can be of two types: (1) If it is situated in an urban area, it should cater to the needs of urban or satellite communities that are coming up in cities like Lucknow, Patna, Bhubaneswar, Coimbatore, Poona, Bangalore, Hyderabad, Visakhapatnam, Vijayawada, Warangal Guntur and other industrial areas; (2) If it is rural oriented it should try to generate and cater to the needs of rural and semi-urban communities. It should try to develop and make use of the products of the place and help in developing small, medium and cottage industries. It may also be near a dam site or a military complex or a agricultural farm or a steel or fertiliser plant; (3) There may be a third type also with features of both. It should be forward looking and try to design patterns and new courses. It should also be experimental, innovative, research oriented, designing new tools, apparatus, evaluation procedures and so on.

Urban Community College

Now let us take the first type. The first type will be located in a urban setting and will admit students with a minimum achievement of 8th or 10th class. If he is deficient in any elementary subjects like English, Telugu, Mathematics or Sciences, he may be given extra coaching after giving an objective achievement test. That course will be of 2 or 3 months duration. This can be termed as a bridge course or connecting course.

The courses offered in the community college will be of a multi-demensional nature. They will cater to the needs of industry, business, commerce and personnel services and mainly job oriented courses of one or two years duration. The college may have different wings with a hobby workshop attached to it so that students during leisure time can develop new tastes.

The jobs likely to arise in a urban community are as follows :

Jobs/ Areas	Industrial, Technical/ Agricultural	Business, Trade, Construction, Communication & Transport	Office, Hospital, College. School & other Institutions	Household & other services
	1. Motor mechanics	1. Salesman	1. Cook	1. Health Educator,
	2. Other mechanics	2. Trader	2. Domestic servants	2. First Aid and Auxiliary nurse
	3. Electrical Asst.	3. Store Clerk	3. Hospital boy	3. Nutrition Educator
	4. Machine shop Asst.	4. Bank Attender	4. House keeper	4. Kindergarten Ayah
	5. Instrumentation Asst.	5. Shop Assistant	5. College or school Lab. Asst.	5. Cleaner (upkeep)
	6 Plumber	6. Telephone Operator	6. Gas mechanic	6. Play ground Keeper
	7. Welder	7. Receptionist	7. Plumber	7. Jobs in a. Laundry b. Haircutting saloon c. Home delivery d. Gardening e. Kitchen Asst.
	8. Repairing & Assembling and production of simple and local machines and	8. Advertiser	8. Gardener	8. Tea, pan, snack shop, small hotel owner
	9. other jobs in local industry or Dam site or workshop or Agro-industries oriented.	9. Book keeping and Record keeping Asst.	9. Forest guard	9. Provision store/shop Asst.
	10. Post Harvest Technology	10. Typing and Shorthand	10. Poultry	10. Handicrafts cottage industries.
	11. Food preservation	11. Hire purchase	11. Dairying	11. Salesman
	12. Canning, fruit juices Bottling soft drinks	12. Packing Asst. and other jobs in local business, Trade and Commerce	12. Furniture making	
	13. Jobs in Cinema Halls	13. Interior Decoration	13. Other jobs in Edl. institutions and Hospitals.	
	14. Jobs in Drama, Theatre	14. Managers of small establishments	14. Services in Deaf, Dumb and other handicapped institutions	
	15. Jobs in Chemical and textile industry.	15. Postal, Railway and transport services	15. Cultural institutions	
		16. Masonary and other jobs in house construction.		

**Director & Head, Deptt. of Adult & Continuing Education, Andhra University, Waltair.*

Take a simple case of our cities. We want to beautify our cities and make the cities less polluted and have a clean look. Except the age old practice of removing the garbage, we do not have trained manpower to clean properly and keep the city beautiful. Why cannot we devise a course for a boy or girl who stopped with elementary education and teach them the elements of sanitation, public health, citizenship and community education and also develop the use of simple machines to quickly remove and dispose the garbage. Secondly why not have a trained gardner who helps in planting the trees, supplying seeds and nutrients and nurturing of trees on the way side places, etc. Each household can pay a tax of one or two rupees and we can maintain a gardner for each ward and also for a public garden. He can also help the local residents in kitchen gardening etc.

So also in hospital there are a number of ward boys. We can hold a course for 3 or 6 months and then only we can recruit them. So also other paramedical personnel required in hospitals, primary health centres and other medical establishments should be trained for at least 9 months. So also the road transport corporation should train their bus drivers, conductors, supervisors on proper lines through short term and long term courses. Take the case of colleges. We are starting a number of junior and degree colleges each year. We do not have properly trained attenders and laboratory technicians. After a boy passes tenth class, a one year course can be given for the laboratory technician and other jobs. So, we can identify such type of jobs in the community and give suitable training in the community college.

So also we can train a variety of persons required in agriculture, business, trade, commerce and small scale industry. In each community college there must be a survey unit which keeps track of the available jobs, trades and occupations.

Rural Community College

Coming to the rural community college we can also identify the various trades and occupations developing in the rural communities. Occupations connected with Agriculture, poultry, dairying, horticulture, hides and skins, carpentry, catering can give rise to suitable courses.

So also repairing of pump sets, use of tractors electrification of village roads and houses and other activities and jobs connected with transportation, communication can give rise to a variety of courses. These courses should be properly planned keeping an eye on the developmental needs of that particular area in mind. In addition village arts and crafts and other handicrafts using the locally available material is an important need of the area and we can start suitable courses. So also entertainment business by various groups of local artists can lead to some courses. We are slowly losing some of the traditional songs and folk arts of our rural side. Harikatha, Burrakatha, Tholubommalata, Bajan groups, kolatam, samugaridies, rope walking are likely to be lost if we don't encourage and preserve. A few part time courses and holiday courses can be envisaged for rural youth. They can profit by these courses and with the help of experienced folk artists, they can have some gainful employment exhibiting their talents and skills in the rural and semi urban areas by having their own troups or companies which the nationalised banks can support under self-employment schemes.

Role of Director

The Director or Principal of a Community College should be a man of vision and resourceful. He should be well versed in the traditions and culture of the local community. At the same time he should be a person with scientific outlook and technological orientation. He should be able to develop new courses and review the course contents in the light of new developments and so on. He should keep himself abrest of latest developments by taking refresher courses and by visiting local insitutions and have contact with all the local institutions, business and industry.

The Director should be a senior man with basic science and technology or education background and shall be put in the scale of a Professor or Reader in the University.

Staff Pattern

The staff should belong to different faculties. The staff should not only have a theoretical background but good in running job oriented courses. They should be middle level experts in their own fields of study. The faculty, we envisage, can be of the following pattern. (given at the bottom).

The staff of each department should have a free communication with other staff members and should know what is happening with the other. It should not be another ordinary school or college. While planning, devising and operating the courses either for the urban or rural community they should come together and devise the course. It should cut across the conventional boundaries of subjects or special skills and should be vocational or job oriented. At the same time each course should have enough theory. A rural boy or urban boy or girl after completing the course with proper orientation can join the regular college or polytechnic if he wants to continue his studies. There should be channels of communication between the Degree or Junior College, community college local institutions and industry and the regional university.

Community College

1	2	3	4	5	6	7
General Subjects	Engineering and Technology	Business Commerce Small Scale Industry	Agriculture Veterinary	Handicrafts cottage industry	Household & other occupations	Folk arts & Crafts

The courses can be one or two or three years (maximum) duration. There may be a few courses of 6 or 9 months duration. Some refresher courses may be organised now and then. The local industry and business may be represented by the nomination of one or two numbers on the board of the community college. The test of the success of the community college will depend on three important criteria: (1) Popularity of the courses among community, (2) Absorption of trained manpower in local industry, business, agriculture trade, commerce, folk arts and crafts and household jobs, etc., (3) Continuous evaluation, upgrading of courses, job improvement and development of integrated personality.

The courses may be open in the first instance to 100 students under 5 or 6 courses. Gradually they may expand. It should have its own hostel and have a residential set up. All students should work in the farm, workshop or laboratory attached to it. Cleaning, cooking and serving should be done by students. A hobby centre and folk arts and crafts centre should be attached and students, spare time should be fully utilised. The idea of servant and master should go. All should work cooperating and consulting with each other.

Role of Universities in the Development of Community College

We should transform our society into a basically production oriented and citizenship society in which dignity of labour is practised and soiling of hands and feet does not carry any stigma of low class values or status. I prefer that we should teach every young man and woman to learn sweep his own room, clean his own table and plate and wash his own clothes. Young men and women and college staff should be trained in the dignity of labour. Gandhiji spoke about youth, transplanted with alien ideas, dress and manners becoming misfits in their own society. That is the bane of our present day society breeding parasites, indisciplined and caste ridden loyalty oriented youth leaders.

Now, this is the time to transform our young man with job oriented schemes into active, dynamic and creative, creatures. The university with its art, science, commerce and engineering faculties can identify the jobs in rural and urban side and do service in locating a community college as a off campus venture. It can have an extended wing of the university in the community as a autonomous body. It can take the suggestions of the local industry, business, commerce, transportation and also departments of health, agriculture, veterinary, irrigation, power, education and cooperation. Each university can try in a modest way to start a college or encourage enterprising individuals or groups in the community when they come forward with a proposal. The universities by taking up new ideas and adopting villages can transform the rural scene. They may also take up urban development programmes through various schemes By making every department conscious of its role in community, the university can become service oriented, development oriented and welfare oriented institution. Then only the students coming out of the portals of the university can be self fulfilling creatures, fully socialised, by becoming a part and parcel of the community. Then only our universities can become legitimate centres of extension and community service and also train and transform the energetic youth by inculcating proper knowledge, skills, attitudes and appreciation. Thus the name "Viswa Vidyalaya" or University becomes a reality and universities can have a pride of place in our Indian Nation. Then only our teachers, professors and Vice-Chancellors can be true Indians or Bharateeyulu.

The time has come in the history of higher education in India to consolidate the gains already made and develop a futuristic orientation. The craze for more and more degree colleges should be put to a stop and the pressure from politicians and other pressure groups should be resisted. They need to be educated how much it costs to a community or government or public to establish a good degree college and prepare good citizens and workers, who can become self employed, instead of joining the ranks of unemployed. Our colleges except a few have failed, by and large to bring the best out of our students. The creative and constructive energies are lost sight off. We have to develop and encourage the alternative systems of edueation through correspondence and contiuning education channels. Here the local degree colleges can become centres of extension, continuing education and community centres. Instead of the degree college, we should think of alternative systems of higher education to promote local arts, crafts, industry and business using local resources and indigenous talents, abilities and skills. It can also become an alternate system of education for young men and can increase the manpower at the middle level. This type of institution can be named community college to give it respectibility. The instituion below this level can be named as folk school or rural school or Grameena Vidyalaya which can become the centre of community living or education. □

Is Semester System Suited to Us ?

(*Continued from page 549*)

ing students to complete graduation requirements in a shorter calendar duration with provision for dropping out in between some sessions to meet the needs of the earning or personal needs of health or other obligations and emergencies, or just a periodic annual break. Brigham Young University (Church sponsored) adopted the last pattern to coincide the Christmas break of approximately a week with the end of a timester rather than cut into a semester. Their philosophy is any leave other than the usual weekly offs of Sundays disturb the trend and mood of teaching and learning. We are still in the culture of bullock carts and such a rapid and unbroken pace may not suit us. □

[*Courtesy: The Hindu*]

Agricultural Education and Development

Excerpts from the convocation address delivered by Shri M. Hidayatullah, Vice-President of India, at the Orissa University of Agriculture & Technology.

Convocation

"Mahatma Gandhi said that the future of India is not in mass production but in production by the masses. This saying of the great Mahatma, though relevant for the upliftment of the majority of our people living in rural areas has a meaning for the Western world also. The human tragedies resulting from unemployment may lead industrial societies, to rediscover that, save for the dull, repetitive and painful tasks, human beings are still better than machines — and certainly more creative. A machine cannot think or create variety without becoming too difficult to invent and operate. One characteristic of human beings is that they can transcend social as well as biological determinism. Animals are almost completely prisoners of biological evolution. But human beings are blessed with the freedom and inventiveness of social development. They can retrace their steps and start on a new course whenever they see danger ahead. They can integrate the raw materials of the earth, with the knowledge, derived from past experience and new knowledge, in a continuous evolutionary process of creation...

"Our country can legitimately claim that in spite of repeated droughts, our endeavour to prevent starvation in different parts of the country, has by and large been successful. Formerly we had to import grains. There is no controlling the monsoon, and Government has often come out with bold and determined steps to see that the country is prepared. Since the mid-seventies we have had fairly large buffer stocks. This should not make us complacent. Our self-sufficiency can easily be tried by some calamity. We owe much to our national will and hard work of the Indian farmer and his readiness to take help from science and the administration.

We have achieved self-sufficiency in food mainly by mobilising big and medium farmers. It is true that the Green Revolution has created some imbalance in our rural areas. This is seen in the disparities between large and small farmers and the tensions between landowners and labourers. When the programme was begun Government's aim was to free the country from imports of food grains. We have every reason to be satisfied that we have almost achieved this. Government is also aware of the problems faced by the rural people. That is why special programmes have been drawn up for small farmers to consolidate their gains in production by extending facilities to them and making their occupation profitable. Programmes have also been devised for providing alternative employment to the landless. Rural economy can be made more efficient by decentralising production but marketing with centralised services in important areas. Our co-operative dairy movement, which began in Gujarat, has now spread to other parts. It is an example to follow. Our greatest hope lies in the resourcefulness of the individual. Building upon this alone can take us far. .

"In India we have coined the term "social forestry" for this concept. This has proved to be acceptable to the villagers and of much more practical value to them. About 24 per cent of the population consists of tribes and there is great scope in Orissa. It should be the endeavour of the students passing out of your University to help in the upliftment of the people living in rural areas by imparting to them knowledge of modern methods of farming, etc. Modernisation of agriculture through the application of science and technology will provide employment to agricultural graduates and other trained technical personnel. Some of the promising fields for new employment are: (a) rural banking; (b) management of co-operatives; (c) supply and maintenance of farm machinery and equipment; (d) supply and marketing of seeds, fertilizers, pesticides etc.; (e) food processing, preservation and marketing. There is room for improving the standard of education of women in our agricultural-education system. The home science programmes in agricultural universities should pay greater attention to the training of women. Agriculture and education are liberating forces which cut across the barriers of caste and class and iron out inequalities. Unfortunately, they can easily aggravate disparities instead of reducing them. for even those who have a short spell at school or college tend to think of themselves as a class apart. I hope you will not suffer from such false notions. Student indiscipline and unrest are spreading to our agricultural universities as well...

"To those who will be leaving the University I give my heartiest congratulations on their success. Let them in their actions think not only of themselves but of the progress of this State, as well as the good of our Nation." □

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Seminar on Problems and Perspective of Russian and Soviet Literature Studies at CIEFL

The Department of Russian of the Central Institute of English & Foreign Languages, Hyderabad, proposes to organise a 3-day All India Seminar on the "Problems and Perspective of Russian and Soviet Literature Studies in *India*", in the last week of December 1982. The aim of the seminar is to take stock of the existing knowledge and expertise in the country in the field of Russian and Soviet literatures, art and culture and to provide a forum for specialists and interested scholars to come together, exchange ideas, discuss problems assoiciated with the development of Russian and Soviet literature studies in the country and thus to effect qualitative change in our approach to these subjects.

This is for the first time, that such an advanced level seminar exclusively devoted to Russian and Soviet literatures, is being organised. The seminar proposes to bring together specialists and known scholars involved in the study of these literatures and culture and civilization, art and literary critics, journalists, writers, translators and other public figures, who can enrich our understanding of Russia and the USSR, besides teachers of Russian and Soviet literature in the country. It intends to formulate guidelines to effect qualitative improvement in the existing programmes of study, taking into account the national context and priorities. The Seminar will focus attention on the literary, socio-political and methodological aspects of Russian and Soviet literature studies in India and other related problems.

The following topics are proposed to be discussed at the seminar: (1) Aims and objectives of Russian and Soviet literature studies in India: Methodological problems of teaching Russian and Soviet literatures in India; (2) Literary and socio-political significance of Russian and Soviet literature studies in India; (3) Assimilation of cultural values through foreign literatures (Russian and Soviet literatures) and the significance of national culture; perspective of Russian and Soviet Literature studies in India; (4) Russian and Soviet literatures and teaching of Russian as a foreign language; (5) Need for evolving a uniform syllabus for teaching Russian and Soviet literatures in India: need for indigenously written text-books and reference materials; (6) (a) Cultural significance of Russian literature before XIX C, in relation to Russian culture/civilization; (b) Russian literature in translation in courses on European literature taught in Indian universities; (7) Russian Realism; (8) Russian critical thought in XIX C. (9) Russian literature of the transition period (End of XIX C. and early XX C.). Conflict of ideologies and early Marxist thought in Russia; (10) Russian formalism and decadence Modernism; (11) Revolution and literature. October Revolution and early Soviet literature; (12) Literary groups of twenties and thirties. Esthetic and ideological basis for their emergence and their fate; (13) Modern (contemporary) Soviet literature; (14) Soviet literary criticism; (15) Russian emigre literature; (16) Problems of translating Russian literature into Indian languages; (17) Influence of Russian/Soviet literature on Indian writers; (18) Russian Drama in Modern Indian Theatre.

Further details in regard to participation in the seminar may please be had from the Organising Secretary, Department of Russian, CIEFL, Hyderabad-500007.

Education and productivity

The theme of the Ninth Annual Conference of the Indian Association for Productivity, Quality & Reliability was "Technical and Management *Education vis-a-vis* Industrial Productivity". The conference was organised on July 31 and August 1, 1982 at the Department of Statistics of the University of Calcutta.

Introducing the conference theme, Prof. S.P. Mukherjee of the Department of Statistics and General Secretary of the Association observed : "that a synergy between knowledge and production workers in an industry *is a prerequisite for higher* productivity and that the contribution of technical and management education towards this depends on the industrial climate. In his inaugural address, Swami Lokeswarananda, Secretary of the R. K. Mission Institute of Culture, referred to the incompatibility of technical and management education currently imparted in India with the prevailing needs of our industries.

Prof. R. K. Poddar, Vice-Chancellor, Calcutta University, emphasised the role of professional bodies like this Association in building up a stronger rapport between the Industry and the Academy.

In his key-note address (read in absentia) Prof. C.R. Mitra, Director, BITS, Pilani remarked that education transfroms and informs industry and higher productivity should also be measured *through higher aggregate comp*etence. He suggested that the non-formal system of education should not be implemented through universities.

In all 15 papers were read two in absentia. Two more papers were circultated to the participants.

OU starts bio-medical engineering course

Osmania University Engineering College has started bio-medical engineering course this year. With this Osmania will be one among few universities in the world which provide instruction in bio-medical engineering. Started with generous assistance from the State Government the initial intake will be 10 students per year. During the first year the students will be imparted background information in mathematical and physical sciences and workshop practice. During the second year the students will spend their time in medical faculty where they will be taught theory and practice of clinical and medical sciences. They will spend the remaining two years at the faculty of engineering learning general engineering, electronics, computer techniques and bio-medical engineering.

Traces of gold found in Orissa

Traces of gold have been discovered in the Precambrian rocks of the area near Joda, Keonjhar district, Orissa, that is being *investigated* by Dr. B.K. Chatterjee and his research scholars Mr. S.K. Ghosh and Mr. N. Pandey of the Department of Geology, Banaras Hindu University. Preliminary investigations revealed the area to be potentially rich in gold placer.

It is interesting to note that recent work done by the Irrigation Project, Orissa reported traces of gold in the Brahmani River, Keonjhar district. In view of the discovery of gold, intensive studies are planned to be undertaken to determine the feasibility of extracting this metal economically. The detailed work of Dr. Chatterjee in this area for the last several years, suggests the possibility of source rock in the neighbouring region, thus enhancing the prospects for the search of this metal.

Workshop on cataloguing

A two-day workshop on "Anglo-American Cataloguing Rules" Part-II, sponsored by Department of Library Science, Panjab University, American Center Library and U.S. Library of Congress Office was held recently at the Panjab University, Chandigarh.

Inaugurating the workshop, Prof. R.C. Paul, Vice-Chancellor said that during the past two decades the emphasis had shifted from traditional book material to non-book material consisting of micro-films, microfiche, tape-recordings, video tapes etc. in libraries. The use of computers in libraries has brought a revolution in library services, he added. Machine Readable Catalogues had standardised bibliographic discription and made international communication more feasible. These new technological changes towards compiling catalogues also need new orientation, he said. Mr. Michael B. Pipkin, Libraries & Books Services Officer, U.S. International Communication Agency introduced the aims and objectives of the workshop.

Miss A.K. Anand, Chairman, Department of Library Science, Panjab University, welcomed the participants.

Dr. U.K. Tikoo proposed a vote of thanks.

Resillience and dynamism of Indian culture

The Post Graduate Complex at Hyderabad of the Dakshina Bharat Hindi Prachar Sabha recently organised a lecture on "The Composite Culture of India" under the Extension Lecture Scheme of the Sabha. Shri K.K. Khullar, delivering the lecture pointed out that the Indian Culture is the only culture which can not be studied merely in museums or archives or libraries and, unlike the cultures of Greece, Rome or Egypt, it is a live culture, the people still practising it. The chief reasons of its survival inspite of its age are its resillience, dynamism and its spirit of absorption and assimilation.

Mr. Khullar pointed out that the constitution of India is the carry forward of the cultural traditions of our country in that it contains the best of Indian Culture viz., freedom of expression and sovereignty of people.

But the same culture which brought glories of the country also gave birth to caste system and untouchability. He concluded by saying that in matters of culture our high is very high but our low is very low.

Hybrid-hydel units to be designed by Roorkee

The Uttar Pradesh Government has sought the help of the alternative hydro energy centre of Roorkee University in exploiting the hydel potential of the Western Gandak canal.

The University will design two ultra low-head hybrid hydel units to be set up on the western Gandak canal in eastern U.P.

This will be the first ever attempt at exploiting a Waterfall of as low as one metre for generating electricity.

One unit will be located in Padrauna and the other in Hata Tehsil of Deoria district. Another

Shortly Releasing
RESEARCH ABSTRACT IV

This research abstract is fourth is in series of the research abstracts. This abstract highlights the results of statistical analysis of a test given by the National Academy of Medical Sciences as a result of a careful preparation of objective items in General Medicine in a specially conducted workshop organized by AIU. It also includes details of the item analysis of the items of the test. What is reported here is comprehensive statistical analysis of an objective type test of 150 items taken by 221 candidates. Besides this, a listing of a very comprehensive computer programme to mark the scripts, to perform statistical analysis of test and of various items is also included in the research abstract. **Price : Rs. 14.00**

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unique feature of the project would be its hybridness. It would produce hybrid bio-mass and solar energy.

On completion, the project is expected to meet the entire fuel and power requirement of the surrounding areas.

Educational and vocational guidance to SC students at OU

A pilot project undertaken by the Psychology Department of Osmania University to offer educational, vocational guidance to the scheduled caste and scheduled tribe students staying in the social welfare hostels was inaugurated recently by Mr K. Ranga Rao, the A. P. Minister of Social Welfare. The Minister said Andhra Pradesh was the first State to take up this project to help the weaker sections attain their full capabilities.

According to the Minister there were more than 1.5 lakh students staying in the government hostels and the government was spending Rs. 35 crores for their welfare. He asked the students to utilise the funds and facilities in a proper manner. He said the students have a right to agitate for academic progress and development but at the same time they should also introspect what good they are doing to the society and their own people.

Prof. N. Y. Reddy, Hon. Director of the Educational Vocational Guidance and Training Project, in his key-note address said the action research project aimed at rectifying the maladies in students by offering counselling. He said a sample of 5,000 students studying in seventh, tenth and inter final class will be tested.

Prof. G. Ram Reddy, Vice-Chancellor of Osmania University who presided said formal counselling was necessary for obtaining better results both in studies and in choosing a career. He said the best universities in the world depended more on tutorials than class room lectures.

The Minister earlier inaugurated a demonstration laboratory for conducting psychological tests.

Shastri Indo-Canadian Institute Fellowships

According to an announcement by the Shastri Indo-Canadian Institute, two fellowships have been established for Indian scholars in Social Sciences and Humanities to study at a designated university in Canada for one academic term. The fellowships are to be held during the winter term (January-April 1983). The candidate should be a scholar at the middle level of his/her career stream and:

(a) with proven ability for research and teaching:

(b) who will concentrate on a specific project of study in Canada from a comparative perspective on Canada-India topics:

(c) with a reasonably clear plan of work during the visit indicating the intention to continue work in the same area on return to India.

Preference will be given to candidates demonstrating a genuine interest in the project and with prior work and experience in the area

The Institute will bear the cost of travel of the selected scholar to and from the designated university and living and research expenses in Canada.

Applications should be made to the Head of the institution who will nominate the candidate

The selection committee will meet at the end of September 1982. The nominations must reach the office of the Institute at 92, Golf Links, New Delhi-110003 not later than 24 September 1982. The nomination should be accompanied by seven copies of a detailed curriculum vitae of the candidate and with seven copies of plan of research study.

Dr. D.C. Pavate memorial lecture

Dr. V.S. Jha, former Vice-Chancellor, Banaras Hindu University, and an educationist, delivered the first "Dr. D.C. Pavate Memorial Lecture" on 2nd August 1982—the birthday of late Dr. D.C. Pavate which is being celebrated by the Karnatak University as the Educationists' Day.

Dr. Jha speaking at length on the state of Education in our country, said that in spite of our achievements in the scientific and technological studies, we should not ignore the fact that our concept of education, right from the beginning, has been related to the West. He also analysed the causes for the 'total failure' in our mass educational programmes and called for a new style in educational administration.

Dr. D.M. Nanjundappa, Vice-Chancellor presided over the function, and introduced the chief guest.

Kurukshetra's committee for academic affairs

Dr. Ganpati Chandra Gupta, Vice-Chancellor of Kurukshetra University, has set up a five-member committee for Academic Affairs to look after matters relating to teaching and research and then prepare plans and schemes to improve the academic standards of the university. The committee will comprise Dr. Surya P. Sharma, Professor and Dean, Faculty of Law, President, Dr. A.K. Dattagupta, Professor of Zoology, Dr. P.C. Jain Professor of Economics, Dr. R.S. Mehrotra, Professor of Botany and Mr. Y.L. Grover, Chairman, Management Department.

PU to have computer

Patna University has been granted Rs 35 lakh for setting up a medium computer for official work, according to Dr. Sudarshan Prasad Singh, Vice-Chancellor.

Dr. Singh said that the computer section would start functioning within a year.

Academy of medical sciences in A.P.

The State Government of Andhra Pradesh has decided to set up Andhra Pradesh Academy of Medical Sciences. An amount of Rs. one lakh has been set apart for this year.

The Chief Minister of Andhra Pradesh also revealed recently that a medical research fund has been created during this year for undertaking individual research in eight medical colleges in the state. The State Government had received 35 research schemes in tropical diseases and a research committee has been constituted for scrutinising them.

Neuro bio-chemistry division at Osmania

The Indian Council of Medical Research would establish a neuro bio-chemistry division in Osmania Medical College for undertaking a research project on brain.

A new campus for Karnatak University

A Post-Graduate Campus of the Karnatak University was recently inaugurated at Belgaum. At present seven courses viz., Marathi, Kannada, Economics, Commerce, Sociology, Geography and Mathematics are provided for Post-Graduate instruction.

At the inaugural function where the guest of honour was the Karnataka Labour Minister Sri A. B. Jakanur, the Vice Chancellor Dr. D. M. Nanjundappa declared that the Post-Graduate campus will be developed in phases in a planned way and would include instruction even in sophisticated sciences like Military Science and Computer Technology in the years to come.

Journalism and Mass Communication course at Dharwad

A post-Graduate course leading to M.A. in "Journalism and Mass Communication" was introduced at the Postgraduate Department of Studies in Library Science, Karnatak University, Dharwad from the academic year 1982-83 until a new department of studies in Journalism is established.

Lucknow University updates PG courses

According to the acting Vice-Chancellor of the University, Dr. R.P. Agrawal, new and updated courses have been introduced in postgraduate classes of the university. These courses will encompass latest study areas.

The courses have already been approved by the Academic Council of the University.

New courses at Kakatiya

The Planning Board of Kakatiya University, Warangal, it is reported, has cleared 16 new courses. Some of these courses would be started from next academic year after they are approved by the University Grants Commission. The UGC is expected to send a committee to visit the university within the next few weeks.

New variety of forage crops

The Central Varietal Release Committee has recently released two new varieties of forage crops developed by the G.B. Pant University of Agriculture & Technology at Pantnagar. These crops have been released on an All-India basis. The varieties released are UPC 5286 of cowpea and UPO 94 of oats.

UPC 5286 variety of cowpea is suitable for early to medium sown periods under both irrigated and rain fed conditions. It is also suited for summer cultivation. It has given on an average, 20 per cent higher green forage yield and 15 per cent more dry matter yield than the 'Russian Giant.'

UPO 94 is a multicut variety of oats suited for irrigated parts of the country where appreciable winter prevails. It does well in medium to high fertility and irrigated conditions of the northern part of the country. This variety has given on an average 15 per cent more green forage and 3 to 5 per cent more dry matter yields than the long standing popular variety Kent".

Panjab to offer Gandhian studies

The Syndicate of the Panjab University decided recently to accept a proposal of the University Grants Commission for starting a postgraduate diploma course in Gandhian Studies through correspondence study.

DPEs as lecturers

The D.P.Es of Colleges affiliated to Panjab University will be redesignated as Lecturers in Physical Education immediately after they obtained the qualification of a teacher, in terms of a decision taken by the Syndicate of the University recently.

Tamil University scheme for books in Tamil

Under a scheme for writing of books in Tamil in the fields of Engineering and Medicine, the University recently selected 17 authors in the field of Engineering and in the field of Medicine.

For the scheme the University has set apart a sum of Rs 1.4 lakhs. Under the scheme the University had received 67 applicants in Engineering field and 53 applicants in Medicine.

Personal

1. **Dr. R.C. Shukla has taken over as Vice-Chancellor of the Bhopal University.**
2. **Prof. J. Ramachandran has been appointed Vice-Chancellor of the Madurai Kamaraj University.**
3. **Dr J.S.P. Yadav has been appointed Vice-Chancellor of Haryana Agricultural University.**
4. **Prof. T. Vasudev has taken over as Vice-Chancellor of the Kakatiya University.**
5. **Shri. G.B.K. Hooja will continue to hold office of the Vice-Chancellor of the Gurukula Kangri Vishwavidyalaya for a third term.**
6. **Dr. G. S. Laddha, Director, A. C. College of Technology, Anna University, has been awarded the Dr. Homi J. Bhabha Award for research in Applied Sciences for 1980.**
7. **Prof. T.R. Anantharaman, Director of the Institute of Technology, BHU, has been elected member of the Royal Belgian Academy for Overseas Sciences.**
8. **Dr. K.L. Narayan, Reader in Physics, Shivaji University, has been selected as founder-member of the semi-conductor group by the Institute of Physics, London, for his research work in Physics.**

Prize for 'PAU News'

'PAU New'—A monthly newsletter of the Punjab Agricultural University has won the first prize among house journals at a competition of publications organised at Srinagar recently by the Directorate of Extension of the Union Ministry of Agriculture and Rural Development.

Grant for AMU guest house

The University Grants Commission, it is reported, has agreed in principle to provide a sum of rupees thirty lakhs in the first phase for the construction of a guest house at the Aligarh Muslim University.

HPU favours rotation of headship

The Executive Council of Himachal Pradesh University has accepted in principle that the system of rotation of headship should be introduced in the teaching departments. Dr. L.P. Sinha, Vice-Chancellor, said that the modalities of the system would be placed before the council at its next meeting.

Summer institute on horticulture

The Punjab Agricultural University organised a summer institute on the subject of laboratory techniques in horticulture research at Ludhiana recently. Speaking at the valedictory function Dr. Sukhdev Singh, Vice-Chancellor, said that with the advancement of scientific research, time had come for the use of highly sophisticated instruments even in agricultural laboratories. He urged upon the horticultural scientists to update their knowledge of basic sciences like Soil Chemistry and Bio-chemistry which had tremendous application in horticulture. Twenty-three horticultural researchers from all over the country attended it.

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Grant for Agriculture

The International Fund for Agricultural Development will give an extra aid of $ 110 millions over the next five years for the agriculture sector. This aid is for a special purpose earmarked for the uplift of the poorest amongst the farming communities through specially designed projects.

Turkey's New Universities

By a decree the Council of Ministers on the Higher Educational Units, 8 new universities came into being recently Turkey. The names of 4 existing Universities have also been changed. The new universities established are: Gazi University in Ankara: Marmara University, in Yildiz University and Mimar Sinan University in Istanbul; 9 September University in Izmir: Thrace University in Edirne; Mediterranean University in Antalya and Centennial University in Van.

The name of the University of Bursa has been changed to Uludag: Kayseri University to Erciyes; The Black Sea Technical University to Black Sea and Diyarbakir University to Tigris University.

Commonwealth games and course in International Relations

Griffith University, Brisbane and the Mount Gravatt College of Advanced Education, also at Brisbane, propose to conduct a course in International Relations during the XII Commonwealth Games scheduled to be held in September/October this year.

Some 2000 athletes and team officials from 56 countries are expected to be present for the games from September 12 to October 16.

Subscribers are requested to quote their subscription number when corresponding with Circulation Department.

● The design of the Asian Games Torch has been finalised. It will be in annodised brass with a pressurised gas bottle inside for the flame (The bottle will contain 900gms of gas at a pressure of 90 lbs per sq. inch.) It will have enough gas to last for 17 minutes or over a distance of 500 metres which is double the distance that each torch will be actually carried. The torch will bear the Asian Games Emblem.

●A special disc will be cut for the Asiad hymn to be sold to the general public from the 19th of November onwards. Another long-playing record will also be cut which will contain Indian games music for similar sale to the public.

●A ten-bed hospital is now ready in the Asian Games Village. Known as the Asiad Hospital, it has diagnostic facilities, arrangements for X-Rays, minor surgery and for physiotherapy. The hospital will function round the clock and the services of all Specialists will be available in the O.P.D. from 9.00 a.m. to 11.30 a.m. daily.

● First aid posts will be set up in all the stadia for participants and other accredited persons. St John's Ambulance Association will provide the first aid facilities.

●For marathon and long distance races, helicopter cover will be provided and ambulances fitted with resusoitation equipment on the route, will cater for these events. Two ambulances at Asiad Hospital and one each at the sports venues will be fitted with wireless equipments. In addition to this adequate beds have been reserved at AIIMS, Safdarjung Hospital, G.B. Pant and Dr. R.M. Lohia Hospitals. ☐

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library Science

1. Kamaiha, Peripydi. Personnel problems in library management of the university libraries in Andhra Pradesh: A study. Karnatak University. Prof. M.R. Kumbhar, Head, Department of Library Science, Karnatak University, Dharwad.

Psychology

1. Ahuja, Triptish. Antecedents of cognitive styles: Field-dependence-independence and locus of control. Himachal Pradesh University. Dr. Sagar Sharma, Department of Psychology, Himachal Pradesh University, Simla.

2. Gupta, Deepti. Development of moral judgement in relation to sex, intelligence, social class and perceived parental disciplinary practices. Himachal Pradesh University. Dr. A.S. Sethi, Department of Psychology, Himachal Pradesh University, Simla.

3. Mehta, Prabha. Personality, study, habits and motivation as related to academic achievement. Himachal Pradesh University. Dr. D.K. Malhotra, Department of Psychology, Himachal Pradesh University, Simla.

4. Sharma, Sarita. A study of personality patterns and class-room verbal behaviour of effective and ineffective school teachers. Himachal Pradesh University. Dr. A.S. Sethi. Department of Psychology, Himachal Pradesh University, Simla.

Sociology

1. Patil, Rajendra Bhupal. Industrial labour in Ichalkaranji: A sociological study. Shivaji University. Dr. V.A. Sangave, Department of Sociology, Shivaji University, Kolhapur.

2. Syamala Devi, V.S. Social change and occupational caste. University of Kerala. Dr. K. Thulaseedharan Pillai, Prof., Department of Sociology, M.G. College, Trivandrum.

3. Thorat, Tukaram Shamu. White collar unionism: A sociological study of white collar employees' organisations in Satara District. Shivaji University. Dr. M.J. Khashalikar, Devchand College, Arjunnagar, Distt. Kolhapur.

Political Science

1. Kavlekar, Vasanti Krishnaji. Rise and decline of Swatantra Party. Shivaji University. Dr. A.S. Chousalkar, Department of Political Science, Shivaji University, Kolhapur.

2. Shah, Neeta. Bharatiya rajniti mein samyavadi (Marxvadi) dal kee bhumika, 1964 se 1980 tak. University of Indore. Prof. P. Viswanathan, Registrar, University of Indore, Indore.

Economics

1. Balkrishan. Capital structure in private sector enterprises in India. Himachal Pradesh University. Dr. M.K. Sharma, Department of Management and Business Administration, Himachal Pradesh University, Simla.

2. Bhatnagar, S.L. Existing irrigation facilities, their developmental potential and their impact on agricultural productivity: A case study of Sirmur Dist. in H.P. Himachal Pradesh University. Dr. C.S. Nagpal.

3. Jairath, M.S. Levels of living of tribals of Himachal Pradesh: An analytical study. Himachal Pradesh University. Dr. R. Swarup, Agro-Economic Research Centre, Himachal Pradesh University, Simla.

4. Kandle, Ramesh Chand. Lead bank scheme in Himachal Pradesh: Progress and perspective. Himachal Pradesh University. Dr. K.S. Sharma.

5. Kapoor, Y.P. Trade unions and wages in the state electricity industry: An inter-regional comparison. Himachal Pradesh University. Dr. M.K. Sharma, Department of Management and Business Administration, Himachal Pradesh University, Simla.

6. Sharda, N.K. A critical analysis of state finances of Himachal Pradesh from a developmental perspective. Himachal Pradesh University. Dr. L.R. Sharma, Department of Economics, Himachal Pradesh University, Simla.

7. Sharma, Shyam Lal. Performance of selected industrial units in Himachal Pradesh. Himachal Pradesh University. Dr. J.P. Bhatti, Department of Economics, Himachal Pradesh University, Simla.

Commerce

1. Bile, Jayaprakash Kondiba. Financing of small scale industries in Western Maharashtra. Shivaji University. Dr. P. Subba Rao, Chh. Shahu Central Institute of Business Education & Research, Kolhapur.

2. Mangnale, Virbhadra Santukrao. Study of cooperative movement in Solapur District with particular reference to its role in removal of poverty. Shivaji University. Dr. K.G. Pathan, Director, Institute of Management, C/o Raoji Sakharam High School of Commerce, Solapur.

3. Patankar, Shrikant Trimbak. A study of rural marketing with reference to mechanised farm equipment in Western Maharashtra. Shivaji University. Dr. P.S. Rao, Principal, Chh. Sahu Central Institute of Business Education and Research, Kolhapur.

4. Shiware, Tukaram Appaya. A study of problems and prospects of Shetkari Sahakari Sangh Ltd., Kolhapur. Shivaji University. Dr. P. Subba Rao, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

Home Science

1. Goyle, Anuradha Prem Prakash. Effective of proceesing on the nutritive composition and protein quality of cereal pulse mixes with or without green leafy vegetables. M.S. University of Baroda. Dr. S. Gujral.

HUMANITIES

Language & Literature

English

1. Desai, Bela Jayant. Attitudes to English language teaching at college level with special reference to learners, teachers and administrators. M.S. University of Baroda. Dr. (Mrs.) Rama V. Vanikar.

History

1. Alikunju, P.A. History of Muslim politics in Kerala from 1922 to 1972. University of Kerala. Dr. C.E. Kareem, Fatimath, Udarasiromoni Road, Trivandrum.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Agarwal, Nirmala. A study of factors related to career maturity of school students. M.S. University of Baroda.

2. Anusuya. A study of traditional ideology of family as related to attitudes towards methods of discipline of children and marital reform. Agra university.

3. Dwivedi, Kamal. The phenomena of retroactive and proactive inhibition as functions of original learning (OL), interpolated learning (IL), set (S) and time interval (TI) among adolescent students of secondary institutions of Kanpur. Agra University.

4. Gupta, Savita. A study of psychosocial manifestation in behaviour pattern of educated girls as a function of women liberation movement. Agra University.

5. Jain, Suresh Chand. Psychological study of attitudes towards family planning: A function of some sociological variables. Agra University.

6. Patil, I.R. A psychological study of intellectually superiors. Karnatak University.

7. Qureshi, Mukhtar Ahmed. Standardization of general aptitude test battery for selection of candidates in agricultural undergraduate course and certain agricultural jobs. University of Udaipur.

8. Raghuvir Swarup. A comparative study of the influence of religious background on death anxiety in the middle age people. Agra University.

9. Ravi Kumar, Rani. Managerial need satisfaction: Certain theoretical and empirical considerations. Andhra University.

10. Sharma, Kum Kum. Attitude towards family planning as functions of socio-economic status, sex and education among caste and religious groups. Agra University.

Sociology

1. Jindal, Bachan Lal. Schooling and modernity. Panjab University.

2. Mathur, J.P. Sociomedio problems of physically handicapped and their rehabilitation in Bhopal Division with special reference to orthopaedically handicapped. Bhopal Vishwavidyalaya.

3. Mutkute, Shashidhar Ramchandra. Pardhans of Vidarbha with reference to their social organizations, traditions and social change. Nagpur University.

4. Pachori, R.S. Training and training needs of agricultural extension personnel in relation to agricultural development. University of Jabalpur.

5. Sharma, Suresh Chandra. A study of relative effectiveness of different media of communication with special reference to rural Rajasthan. Panjab University.

6. Umamaheswara Rao, Namagiri. Female education and fertility: A study in modernization. Andhra University.

Social Anthropology

1. Panda, Premananda. Binjhala royal tribe of Orissa: A study of their traditional political system. Sambalpur University.

2. Sehgal, Veena. Ecological influence on the socio-cultural system of the Gaddis of Bharmour Sub-Tehsil, Chamba District, Himachal Pradesh. University of Delhi.

Political Science

1. Bholey, Bhaskar Laxman. Bharatiya shetkari kamgar pakshacha abhyas. Nagpur University.

2. Chaudhary, Swaran Lata. Women in the All India services: I.A.S., I.P.S. and I.F.S. University of Delhi.

3. Gawankar, Rohini. The contribution of Maharashtra women to politics. S.N.D.T. Women's University, Bombay.

4. Malhotra, Parveen. Dr. Lohia ka samajvadi darshan: Mahatma Gandhi ke vishesh sandarbh mein. Vikram University.

5. Mukhopadhyay, Santosh Kumar. Rabindranath-o-manabik adhikar. University of Calcutta.

6. Puri, Rama. The United Nations efforts towards codification and progressive development of the law of the sea with special reference to India's position on limits of National jurisdiction in the sea. University of Delhi.

7. Rajput, Sarla. Role of chief minister in state administration: A case study of M.P. Bhopal Vishwavidyalaya.

8. Shrivastava, P.K. A critical analysis of the working of rural development administration and planning in the district of Jabalpur. University of Jabalpur.

9. Shrivastava, Vijay Kumar. Bharatiya nyayapalika ka rajnitik darshan visheshteh 1969 ke pashchat. Ravishankar University.

10. Sood, Santosh. Trade union leadership in Punjab. Panjab University.

11. Suve, Rajender. Madhya Pradesh ka lok seva varg prashasan: Ek vishleshnatmak adhyayan. Jiwaji University.

12. Thansanga, H. Government and politics in Mizoram. Gauhati University.

13. Tiwari, Usha, Smt. Gandhi aur Bharatiya Congress dal. Vikram University.

Economics

1. Chidanandeswara Rao, Adivi. Industrial relations in public sector heavy engineering industry. Andhra University.

2. Goel, H.P. Cost-benefit analysis of higher education in India. Avadh University.

3. Jain, P.K. Problems of poultry farm management in Chhatisgarh region. University of Jabalpur.

4. Jha, Hari Bansh. Resource mobilisation and economic development in Nepal during plan period. University of Bihar.

5. Jha, Markanday. Lead Bank Scheme and regional economic development: A case study of the Kosi division in North Bihar. University of Bihar.

6. Murari Lal. Bharat mein khel saman udyog: Uttar Pradesh aur Panjab ke vishesh sandharbh mein. Agra University.

7. Pant, Durga Raj. Land reforms in Nepal, 1952-1979. University of Bihar.

8. Ramesh Babu, Supapaneni. A study of India's imports 1960-1961 to 1976-77. Andhra University.

9. Samanta, Purnachandra. Business performance, profitability and government control: A study of the working of selected state enterprises in Zambia-Industrial Development Corpn., Zambia National Energy Corpn. and National Transport Corpn. University of Calcutta.

10. Sathe, Vijay Shivram. India's trade with East European countries. Nagpur University.

11. Simhachalam, Kurmana. A study of finances, productivity and unit costs of higher education in Andhra Pradesh. Andhra University.

12. Singhal, M.C. Rural unemployment in Northern U.P. with special reference to Agra Region. Agra University.

13. Tripathi, V.P. The role of National Cooperative Development Corporation in the development of cooperative movement in India. Agra University.

14. Ved Prakash. Economics of air transport in India. University of Jabalpur.

Law

1. Jain, Radhey Lal. Law and practice of defence of insanity in India. Vikram University.

Public Administration

1. Madhava Rao, L.S. Financial management of panchayati raj institutions in Andhra Pradesh with special reference to a district. Kakatiya University.

Education

1. Gakhar, Subhash Chander. Identification of variables of educational environment and related to the acquisition of mathematical concepts at the junior secondary stage. Panjab University.

2. Harnam Singh. Effect of ephedrine on muscular performance. Panjab University.

3. Kakoty, Suchitra. A study of the educational development of the Bodo tribe during the post independence period with particular reference to the Northern region of Assam. Gauhati University.

4. Kalia, Ashok Kumar. A study of values and ideals of early adolescents living in different types of home environment. Panjab University.

5. Malhotra, Man Mohanlal. Effects of systematic approach to instruction in mechanics of structures on the achievement, transfer of learning motivation study habits and attitudes of polytechnic students. M.S. University of Baroda.

6. Pillai, Kamala S. Sex differences in certain personality and aptitudinal dimensions related to science achievement. University of Calicut.

7. Rajeeva, M. A. study of achievement motive: Its correlates and performance of IX grade pupils of secondary schools of Bangalore. M.S. University of Baroda.

8. Sharma, G.P. A study of the foundational course prescribed for B.E. Degree of Indian Universities. Agra University.

9. Trivedi, Abhay Hariprasad. A study of leadership behaviour and innovation proneness in the higher secondary schools of Saurashtra. M.S. University of Baroda.

10. Vyas, Jagdish Chandra. Impact of personality traits, attitudes and classroom behaviour of teachers on pupils' scholastic attainment. University of Udaipur.

Commerce

1. Azad, R.R. A critical appraisal of the industrial licensing policy of the Government of India. Agra University.

2. Garg, Amar Nath. Financial organisation of Punjab state industrial undertakings. Panjab University.

3. Jagan Nath. Management of earnings in pharmaceutical nidustry. Panjab University.

4. Jain, Kameshwar. Rewa sambhag ke sangathit udyogon mein kramkon kee mazdoori evam aye ka ek tulnatmak adhyayan. Awadhesh Pratap Singh University.

5. Mittal, J.P. India's foreign trade with USA since 1966. Agra University.

6. Sharma, R.P. Impact of International Labour Organisation on industrial labour in India with particular reference to labour legislation. Agra University.

7. Shukla, Chintamani. Personnel management in coal industry in India with special reference to Madhya Pradesh. University of Saugar.

8. Tiwary, Dharamendra Kumar. Gandhi ke arthik vicharon ka sameekshatmak adhyayan. Magadh University.

Management

1. Krishna Murari. Perspective planning for exploitation of limestone resources for supply to steel plants in India. Indian School of Mines, Dhanbad

Home Science

1. Chaturvedi, Vijayshree. Impact of mercury toxicity on protein, lipid and vitamin status of albino rats. S.N.D.T. Women's University, Bombay.

HUMANITIES

Philosophy

1. Bhattacharya, Jyotirmay. Consciousness in existentialism. Rabindra Bharati University.

2. Gowsami, Shipra. A comparative study of the nature and destiny of man in christianity and shuddhadvaita. University of Udaipur.

3. Joga Rao, Srirangam Durga Ananta. Interaction between science and Indian philosophy: A critical study with special reference to Caraka Samhita. Andhra University.

4. Verma, Mithlesh Kumar. Some aspects of the social philosophy of M.N. Roy. Magadh University.

Language & Literature

English

1. Khan, Mohammed Quamruddin. Eastern contributions to the European renaissance with an illustrative study of Elizabethan literature. *D. Litt.* Utkal University.

2. Sengupta, Santana. An examination of Somerset Maugham's major novels. University of Saugar.

3. Sharma, Renu. Structure of consciousness in Jane Austen's major fiction. Osmania University.

4. Singh, Rashmi. The heroines of Charles Dickens. Agra University.

5. Singh, S.P. Realism in the novels of William Dean Howells. Agra University.

Sanskrit

1. Achuthan Pillai, K. The conception of certain alankaras according to the Rasagangadhara of Panditaraja Jagannatha. University of Calicut.

2. Baljit Singh. Modernistic trends in the lyrical poetry of Thomas Hardy. Agra University.

3. Bhattacharya, Hrishikesh. Shaktyupasna vimarsh. Kameshwara Singh Darbhanga Sanskrit University.

4. Dube, Chandra Dev. Manas rogon ka ek adhyayan. Kameshwara Singh Darbhanga Sanskrit University.

5. Gupta, Bachno. Life and works of Mankha. University of Jammu.

6. Jha, Shiv Kant. Ayurvichar-samiksha. Kameshwar Singh Darbhanga Sanskrit University.

7. Malik, Usha. Mandana Mishra krit sphotasiddhi. University of Delhi.

8. Milap Singh. Sanskrit Jain champu kavyon ka sameeksthamak adhyayan. Agra University.

9. Mishra, Brijendra. Parjanya vidya-samiksha. Kameshwar Singh Darbhanga University.

10. Misra, Ramsajivan. Visistadvaita darshan mein tulnatmak adhyayan. Awadhesh Pratap Singh University.

11. Nath, Jiban Krishna. Vriti vartikam of appayadiksita: A study. Rabindra Bharati University.

12. Pandey, Chandra Shekhar. Yakshmopchar-vidhi. Kameshwar Singh Darbhanga Sanskrit University.

13. Rami, Anjana Mathurdas. Sanskrut prahasano: Ek adhyayan. Sardar Patel University.

14. Raval, D.P. A critical study of Shri Yadusunder Mahakavya (by Shri Padmasunder) with editing of the same. Saurashtra University.

15. Sharma, K.C. Rajasthan ka swatantrayottar sanskrit gadh sahitya. University of Rajasthan.

16. Vishvakarma, Ram Harsh. Mahakavi Rajeshwar kee kritiyon ka sanskritik adhyayan. University of Jabalpur.

Hindi

1. Agarwal, Shakuntala. Hindi laghukatha. University of Rajasthan.

2. Bajaj, Gurdial Singh. Adhunik manovigyan aur manovishleshan kee darishti se Hindi ekanki ka adhyayan, 1935 se 1960. Maharshi Dayanand University.

3. Bharatiya, Prem Narayan. Laghu patrikaon ka samajik rachnatmak evam alochanatmak Hindi sahitya ke nirman mein yog dan. Vikram University.

4. Bhatia, M.N. Shri Rasikdas (Radha Vallabh sampradaya): Jivan aur sahitya. Agra University.

5. Budhraja, Santosh Kumari. Maithili Sharan Gupta kee saundarya chenta. University of Delhi.

6. Dhanoa, Ravinder Kaur. Hindi aur Punjabi kahani sahitya ka tulanatmak adhyayan 1910-1950. University of Calcutta.

7. Garg, Deepa. Ila Chand Joshi ke katha sahitya ka manovishleshnatmak adhyayan. Agra University.

8. Jai Prakash. Kabir ke kavya ka samajshastriya adhyayan. Maharshi Dayanand University.

9. Jasbir Kaur. Ritikaleen ritimukt kaviyon kee shringarbhavana. University of Delhi.

10. Joshi, Sunita. Hindi katha sahitya mein Bharatiya rashtriya krantikari bhavana. Vikram University.

11. Lal, Asha Rani. Tulsi sahitya mein shakti-upasna. University of Bihar.

12. Malhotra, Veena. The structure of Kharia: A study of linguistic typology and language change. Jawaharlal Nehru University.

13. Mehta, Neerja. Sur sahitya mein sanchari bhag yojna. Agra University.

14. Mishra, Azad. Laukik pratiyon ka bhasha shastriya parilochan. University of Rajasthan.

15. Modi, Shakuntala C. Narendra Sharma ke vyaktitva evam krititva ka anusheelan. Nagpur University.

16. Nidaria, Bhagwati Prasad. Nirgun sant kavya mein yog tattva. University of Delhi.

17. Pandey, Kripa Shankar. Rangmanchye tantra kee drishti se Hindi natya vidya ka kramik vikas. Ravishankar University.

18. Pathak, Usha S. Dr. Vrandavan Lal Verma ke upanayasik sahitya mein yug chetna aur shilpa. Nagpur University.

19. Prasad, Balram. Synchronic study of Bhojpuri as spoken in Arrah District of West Bihar. University of Calcutta.

20. Pratibha Kumari. Shri Lal Shukla ke upanyas sahitya ka vivechanatmak adhyayan. Agra University.

21. Praveen Lata. Hindi gadya navlekhan (1970-75) ka shailitatvik adhyayan. Agra University.

22. Samarjit Singh. *Muktibodh ke kavya kee shaili: Vaigyanik adhyayan.* Vikram University.

23. Sangwan, Bhudev Singh. Dinkar kavya ka chintan-paksh. Maharshi Dayanand University.

24. Sengar, Kusum. *Bhaktikaleen sant kaviyon kee lok chetna.* Bhopal Vishwavidyalaya.

25. Sharma, Niraja. 1947 ke bad ke kahani sahitya mein tootata hua parivar. Agra University.

26. Sharma, Ram Avtar. *Prasad ka katha sahitya.* University of Delhi.

27. Sharma, Ram Niwas. Shri Nimbak sampra aya ke sandarbh mein Hari Vyas ji Devacharya kee samagar kritiyon ka adhyayan. Jiwaji University.

28. Sharma, Vimlesh. Tarakvadha evam Parvati mahakavyon ka tulnatmak adhyayan: Kavya, darshan, samaj, sanskriti evam *rajniti ke pripreckshya mein.* Agra University.

29. Sneh Sudha. Sant kavya parampara ke sandarbh mein Akshra Ananya ke krativ ka vivechan. University of Delhi.

30. Srivastava, Durga Prasad. Hindi ke ritikalin ritimukt kavya mein kriyapada sanrachna: Ghananand, Bodha, Dwija, Dev, Alum evam Thakur ke sandarbh mein. Agra University.

31. Tiwari, Sushma. Madhyakaleen nirgun kavya dhara ke sant kaviyon kee pragatisheel evam janvadi chetna ka anusheelan. Bhopal Vishwavidyalaya.

32. Usha Rani. Braj Pradesh (Mathura, Agra, Aligarh) ke pratinidhi lokkavi aur unka kavya: Ek sarvekshan. Agra University.

33. Vats, Babu Lal. Kabir aur Akho kee darshnik chetna ka tulnatmak adhyayan. Agra University.

34. Vimal Prabha. Manovigyan ke sandarbh mein Hindi muhavare: Ek sarvekshan. Panjab University.

35. Viswambharan, M.S. New dramatic forms in Hindi: Techniques and experiments. University of Calicut.

Urdu

1. Alvi, Rafiqunnisa. The contribution of Maharashtrian women to the development of Urdu literature. Nagpur University.

2. Enam, Ruhi. Modern trends and techniques in Urdu novel after independence. University of Calcutta.

3. Fidaul Mustafa. Life and literary works of Sieyed Ehtisham Hussain. Nagpur University.

4. Rizvi, S.H.N. Urdu mein salam nigari. University of Jabalpur.

Bengali

1. Barapanda, Sachindranath. Winish sataker Bangla samajik patrikaye byanga rachanar bastuvad-o-rupabaichitrya. University of Calcutta.

2. Chakrabarti, Himadrisekhar. Rajkrishna Royer Jiban-jugsahitya kriti. University of Calcutta.

3. Chakrabarti, Piiushbaran. Adhunik Bangla sahitya sam- [illegible] ity of Calcutta.

[illegible] Sahityik Sukumar Ray: Man- [illegible] University.

5. Das, Paresh Chandra. Banglar samaj-o-sahitye Kaliprasanna Sinha. Rabindra Bharati University.

6. De, Asish Kumar. Sahitya alochanay stylistics ebong Tarasankar-o-manik Bandyopadhyayer nirbachita upanyas samuher blislessan. Rabindra Bharati University.

7. Ghosh, Mira. Dwitiya biswajuddha-samakalin Bangla kathasahitya 1939-45. University of Calcutta.

8. Mitra, Subhashkumar. Adhunik Bangla kabitae europeo prabhab: Jibanannda Das, Sudhirdranath Dutta, Buddhadeb Basu-o-Vishnu Dey'r Bishesh prasanga kramey. University of Calcutta.

9. Samaddar, Ranajitkumar. Bangla-sahitya-o-sanskritite sthaniya bidroher prabhav: Sannyasi bidroho theke sipahibidroho paryjanta. University of Calcutta.

10. Sinha, Kamal Kumar. Gandhijir bhabadarsa-o-Bangla sahitya, 1900-1950. Univrersity of Calcutta.

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1. Mishra, Kishore Chandra. Upendra Bhanjanka kabyare upaman: Ek adhyayana. Sambalpur University.

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2. Kulkarni, Damodar Vishnu. The critical study of Shri Ekanathi Bhagwat. Shivaji University.

3. Muley, Veena Manohar. Marathiteel anuyadit American sahitya. Nagpur University.

4. Pandharipande, Damayanti S. Samagra: Balkavi-ek chikitsak abhyas. Nagpur University.

5. Tapare, Pandit Bhimrao. Navasahitya: Ek abhyas. 1940 to 1970 A.D. Shivaji University.

Tamil

1. Mariappan, A. A study on socialist realism in Tamil novels, 1952-1976. University of Delhi.

Malayalam

1. Ramakrishnan, V.S. Stylistic approach to contemporary Malayalam poetry. University of Calicut.

Kannada

1. Chawalar, S.P. Jayadevitayi ligade baduku baraha sadhanegala samagra adhyayana. Karnatak University.

2. Hiremath, B.R. Sasanagalalli karnatakada vartakaru. Karnatak University.

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1. Mangamma, B. Tikkana natakiya silpamu. Viratapanvamu. *Sri Krishnadevaraya University.*

2. Subhani, S.M. Vemana's life and work: A critical survey. Nagarjuna University.

Fine Arts

1. Banerjee, Ranjit Kumar. Vindhya Pradesh ke sangeet gharane aur unkee adhyapan vidhiyan. Awadhesh Pratap Singh University.

2. Guru Prasad. Bund Ikhand kee *chitra sadhana.* Agra University.

3. Mukhopadhyay, Shiba Prasad. Correlation between built forms and wake geometry: An investigation into wind flow around buildings. Indian Institute of Technology, Kharagpur.

4. Murthy, Padma. A study of development of Karnataka music: A scientific approach. Bangalore University.

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1. Rahman, Mahfuza. Pattern of spatial distribution of certain diseases in the Brahmaputra valley: A study in medical geography. Gauhati University.

2. Sharma, Archana. Bradley evam Shri Aurobindo darshan mein jagat kee satta. Agra University.

3. Sharma, Prem Kishore. Agro-industrial locations and their role in the economic development of Central Ganga-Yamuna Doab. Agra University.

4. Shinde, Shankar Bapu. Some aspects of agriculture of Satara-District: A geographical analysis. Shivaji University.

5. Singh, Dharm Vir. Regional structural change in the national capital region. Agra University.

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1. Banerjee, Byeskesh. The Bengal famine of 1943 and its social impact. Rabindra Bharati University.

2. Dey, Tushar Kanti. Life and socio-economic conditions of the Lushai-Kuki tribes 1850-1914. Gauhati University.

3. Jain, Usha. Madhya Pradesh ke abhylekhyon ka sanskritik adhyayan 300-650 esvi. University of Jabalpur.

4. Mukerji, Amit. V.A. Smith: A study in Indian historiography. Agra University.

5. Sharma, Asha. Mughal rajniti mein mahilaon kee bhumika, 1526-1707 A.D. Agra University.

6. Upadhyay, Sachchinand Prasad, Madhavrao Scindia (Bhootpurv Gwalior rajya) aur unka prashasan. Vikram University.

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Ross, Ralph. "The nature of the transdisciplinary: An elementary statement". *New Directions for Teaching and Learning* (8); Dec 81: 19-25.

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Shukla, P.C. "University administration in Uttar Pradesh". *Indian Education* 12(3-4); June-July 82: 20-4.

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Masih, S. "Review of researches on environmental education". *Quest in Education* 19(3); July 82: 238-45.

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De, Debkumar. "A test of efficacy of composite social interaction model of teaching first language". *Quest in Education* 19(3); July 82: 260-8.

Wilson, Everett K. "Power, pretense and piggybacking: Some ethical issues in teaching". *Journal of Higher Education* (Ohio) 53(3); May-June 82: 268-81.

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Sudame, G.R. and Goel, D.R. "A study of school broadcasts in India". *Indian Education* 12(3-4) June-July 82: 25-30.

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Willson, Victor L. "Maximising reliability in multiple-choice questions". *Educational and Psychological Measurement* 42(1); Spring 82: 69-72.

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Rajput, J.S. 'Science—teacher preparation". *University News* 20(15); 1 Aug 82: 489, 495.

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Hill, C. Russell. "Education and earnings: A review of the evidence". *Economics of Education Review* 1(4); Fall 81: 403-20.

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Turner, Bob. "The accessibility of higher education to mature age students". *Education Policy Bulletin* 9(1); Spring 81: 51-65.

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REASONS BEHIND the continuing crisis at Pantnagar: An introspective resolution of the Academic Council, 8th March, 1982 (II)". *University News* 20 (12); 15 June 82: 396-8.

JAWAHARLAL NEHRU UNIVERSITY

NEW MEHRAULI ROAD
NEW DELHI-110067
Advertisement No. Aca. III/8/82

Applications are invited for the following posts :

I. SCHOOL OF SOCIAL SCIENCES

1. Professor/Sr. Fellow in Agricultural Economics (Temporary upto March 1985 and likely to continue)

Job Description

To undertake research in the area of agricultural economics and to help in the teaching of M.A., M.Phil/Ph.D. students in the Centre for the Study of Regional Development and Centre for Economic Studies and Planning.

Essential Qualifications

(i) Consistently good academic record with at least a high second class Master's degree in Economics or an equivalent qualification from an Indian/Foreign University.

(ii) A doctor's degree or published work of an equally high standard, and
(iii) About ten years' experience of teaching and/or research.

Desirable Qualifications

Should have done outstanding research in the field of agricultural economics.

CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT

2. Professor/Sr. Fellow in Demography

Job Description

To undertake research and to participate in the teaching programmes of the Centre.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in population studies/economics/sociology/geography/mathematics/statistics or equivalent qualification from an Indian/Foreign University.

(b) A doctor's degree or published work of an equally high standard in the area of demography.

(c) About ten years' experience of teaching and/or research in demography.

Desirable Qualifications

Considerable research experience in demographic and population studies.

3. Professor/Sr. Fellow in Economics (Temp. likely to continue)

Job Description

To undertake research in the area of economics with special reference to regional development and to help in the teaching programmes of the Centre. The candidate is expected to participate actively and contribute to these activities.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in economics or an equivalent qualification from an Indian/Foreign University.

(b) A doctor's degree or published work of an equally high standard; and
(c) About ten years' experience of teaching and/or research.

Desirable Qualifications

Should have done otstanding research in quantitative techniques/regional analysis/industrial economics.

4. Associate Professor/Fellow in Geography (Temp. upto 30.4.1983).

Job Description

The Centre undertakes research/teaching activities in the area of geography. The candidate is expected to participate actively and contribute to these activities.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in a relevant discipline or its equivalent qualification from an Indian/Foreign University.

(b) A doctor's degree or published work of an equally high standard; and
(c) About five years' experience of teaching and/or research

Desirable Qualifications

Experience of teaching and research in some aspect of the geography of regional development with particular reference to Rural-Urban settlements/population geography/agricultural geography/social geography.

5. Assistant Professor in Geography (Temp. leave vacancy)

Job Description

To undertake research and to participate in the teaching programmes of the Centre.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in Geography or its equivalent qualification from an Indian/Foreign University ; and

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

Proven research interest in quantitative m[illegible]
Geogra[illegible]
cial [illegible]

CENTRE FOR ECONOMIC STUDIES AND PLANNING

6. Associate Professor/Fellow in Economics (Temp. likely to become available)

Job Description

To undertake research and to participate in the teaching programmes of the Centre.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in Economics or an equivalent qualification from an Indian/Foreign University.

(b) A doctor's degree or published work of an equally high standard, and
(c) About five years experience of teaching and/or research.

Desirable Qualifications

Specialisation in Economic Theory/Econometrics/Economic History.

CENTRE FOR POLITICAL STUDIES

7. Associate Professor/Fellow in Political Science

Job Description

The Centre conducts teaching and research programmes in Political Science. The candidate is expected to actively participate and contribute to these activities.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in Political Science or its equivalent qualification from an Indian/Foreign University;
(b) A doctor's degree or published work of an equally high standard; and
(c) About five years experience of teaching and/or research.

Areas of Specialisation: (one or more of the following):

(i) Contemporary Political Theory.
(ii) Contemporary Political Analysis.
(iii) Political Parties.
(iv) Indian Political Process.

CENTRE FOR THE STUDY OF SOCIAL SYSTEMS

8. Associate Professor/Fellow
—Two posts

Job Description

The Centre undertakes research & teaching in Sociology/Social Anthropology. The candidates are expected to actively participate and contibute in these activities.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's Degree in Sociology/Social Anthropology or its equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard in Sociology/Social Anthropology.

(c) About 5 years' experience of teaching and/or research in Sociology/Social Anthropology.

Desirable Qualifications

Some experience in guiding research at the M.Phil/Ph.D. levels.

Area of Specialisation required; (for post No. I) one or both of the following;

(i) Sociology of knowledge

(ii) Sociology of religion

(for post No. II) one or more of the following;

(i) Comparative Study of Complex Societies and their dynamics.

(ii) Kinship and Social Structure

(iii) Concepts and methods in the anthropological Study of Complex Societies.

CENTRE OF SOCIAL MEDICINE & COMMUNITY HEALTH

9. Associate Professor/Fellow (Community Health)

Job Description

The Centre undertakes research and teaching activities in the area of community health. The candidate is expected to participate actively and contribute to the above activities.

Essential Qualifications

(a) Consistently good academic record in MBBS or an equivalent qualification from an Indian/foreign University.

(b) A doctoral degree in any aspect of community health or published work of an equally high standard.

(c) About five years of teaching experience or experience in developing inter-disciplinary approach to the education and training, research and consultation in the field of community health.

Desirable Qualifications

Publications of high quality in the field of community health.

10. Assistant Professor in Community health

Job Description

The Centre undertakes research and teaching activities in the area of community health. The candidate is expected to participate actively and contribute to these activities.

Essential Qualifications

(a) Consistently good academic record in MBBS or an equivalent qualification from an Indian/foreign University.

(b) A doctoral degree in any aspect of community health or published work of an equally high standard.

(c) Some teaching experience or experience in developing inter-disciplinary approach to the Education and Training, research and consultation in the field of community health.

II. SCHOOL OF INTERNATIONAL STUDIES

Centre for Studies in Diplomacy, International Law & Economics

11. Professor/Senior Fellow in Diplomacy

Job Description

1. To design and teach courses and guide research in Diplomatic Studies at the M.A. and M.Phil/Ph.D. levels.

2. To organize seminars and colloquia on the Diplomatic challenges and options of India and the Third World.

3. To undertake individual research projects, and to participate in the collective research efforts of the Division.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's degree in any of the Social Sciences or an equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard in the field of Diplomatic Studies.

(c) About ten years' experience of teaching and/or research in the field of Diplomatic Studies.

Desirable Qualifications

Considerable experience of guiding research in the field.

CENTRE FOR AMERICAN & WEST EUROPEAN STUDIES

12. Professor/Sr. Fellow in American Studies (leave vacancy upto 30.11.83).

Job Description

The Centre conducts teaching and research programmes in American Studies. The candidate is expected to actively participate and contribute to these activities.

Essential Qualifications

1. Consistently good academic record with atleast high second class Master's degree in Political Science/History or an equivalent qualification from an Indian/Foreign University.

2. A doctor's degree in American Studies or published work of an equally high standard.

3. About 10 years experience of teaching and/or research in American Studies.

4. Substantial competence in American affairs and experience in organising and conducting courses in American Studies at the M.Phil. level. Guidance of M. Phil. and Ph.D. dissertations in the field of American Studies.

CENTRE FOR SOUTH, SOUTH EAST & CENTRAL ASIAN STUDIES

13. Assistant Professor in Pakistani Studies

Job Description

The Centre undertakes research and teaching in Pakistani Studies. The candidate is expected to actively participate and contribute to these activities.

Essential Qualifications

(a) Consistently good academic record with at least a high second class Master's Degree in any of the Social Sciences or its equivalent qualification from an Indian/Foreign University.

(b) A Doctor's degree or published work of an equally high standard in the field of Pakistani Studies; and

(c) Knowledge of Urdu.

Desirable Qualifications

Some teaching and/or research experience in the field of Pakistani Studies.

III. SCHOOL OF ENVIRONMENT SCIENCES

14. Professor/Sr. Fellow in Environmental Biology

Job Description

Teaching of M.Sc. and M.Phil students in the area of Environmental Biology and guidance of research M.Phil/Ph.D. students.

Essential Qualifications

1. Consistently good academic record with at least a high second class Master's degree in a relevant discipline or an equivalent qualification from Indian/Foreign University.

2. A doctorate degree or published work of an equally high standard.

3. About ten years' experience of teaching and/or research in Biological Science (Physiology, Biochemistry, Biophysics, Botany, Zoology, Microbiology or Genetics) in relation to Environment.

Desirable Qualifications

1. Experience of post-graduate teaching and guidance of Ph.D. students in relevant fields.

2. Published work of high quality in a relevant field.

15. Assistant Professor (Temp. against leave vacancy)

Job Description

To undertake research and to participate in the teaching programmes of the School.

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class M.Sc. in Physiology or M.B.B.S./or its equivalent qualification from an Indian/Foreign University; and

(b) A Ph.D. degree or equivalent published work of high standard in Physiology.

Desirable Qualifications

At least 2 years' experience in research or teaching in recognised university/college.

IV. SCHOOL OF LIFE SCIENCES

16. Curator for Botanical Garden

Job Description

1. to set up and supervise a seed house, a herbarium and develop the Botanical Garden and activities thereof.
2. to carry out such other work as may be assigned by the Dean, School of Life Sciences.

Essential Qualifications

At least M.Sc. in Botany or Agriculture with knowledge in Plant Taxonomy as evidenced through research papers or thesis. Knowledge of making herbaria sheets and identification of plants is essential. Higher starting salary may be given to person with experience in developing Botanical Garden.

V. SCHOOL OF LANGUAGES

17. Centre of French Stutdies

Assistant Professor (leave vacancy for one year)

Job Description

To teach courses in translation, interpretation and language, and to do re-

search in this area. The candidate is expected to participate actively and contribute to these activities.

Essential Qualifications

(i) Consistently good academic record with at least a high 2nd class Master's degree in a relevant discipline or its equivalent qualification from an Indian/Foreign University; and

(ii) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

(a) Good knowledge of theory and practice of translation and interpretation.

(b) Some teaching experience.

18. Maintenance Engineer

Job Description

Responsible for the efficient operation, maintenance, and design and development work in the Language Labs Complex.

Essential Qualifications

First class degree in Electronics and Telecommunication Engineering or equivalent with five years of professional experience in operation, maintenance, design and development work in a Language Laboratory equipped with professional grade audio, video and photography equipments.

Desirable Qualifications

(a) Experience in design and development of Acousto-electronic equipments and installations.

(b) Good working knowledge of foreign languages.

(c) Good working knowledge of film and video production.

CENTRE OF AFRICAN & ASIAN LANGUAGE

19. Assistant Professor in Japanese

Job Description

The Centre undertakes research and teaching in Japanese language & literature. The candidate is expected to participate and contribute to these activities.

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class Master's degree in the relevant discipline or its equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualifications

1. Experience in teaching Japanese language to degree course.
2. Studied in Japan University or experience in Japanese speaking area.
3. Knowledge of teaching methods through language Lab and A.V. Methods.

CENTRE OF LINGUISTICS & ENGLISH

20. Assistant Professor in English—Two posts (one regular, one leave vacancy)

Job Description

"Organising/teaching (i) English as a foreign language, (ii) as a second language, (iii) **English for specific purposes, (iv) remedial and skill courses in English language, and (v) use of AV methods and Equipment for English** teaching.

Essential Qualifications

(a) Consistently good academic record with at least a high 2nd class Master's degree in the relevant discipline or its equivalent qualification from an Indian/Foreign University;

(b) A doctor's degree or published work of an equally high standard.

Area of Specialisation

Material production and the teaching of English as a foreign/second language.

Scales of Pay

For Posts of Professor/Sr. Fellow

Rs. 1500-60-1800-100-2000-125/2-2500

For Posts of Assoc. Prof./Fellow

Rs. 1200-50-1300-60-1900

For Posts of Asstt. Professor

Rs. 700-40-1100-50-1600

For Posts of Curator & Maintenance Engineer

Rs. 700-40-900-EB-1100-50-1300

Provided that in the case of Assistant Professors if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided, he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Relaxation in any of the qualifications may be made (a) in favour of persons of eminence or of high academic professional distinction, and (b) in exceptional cases where adequately qualified persons are not available but are otherwise found suitable for the respective positions. It will also be open to the University to consider the names of suitable candidates who may not have applied.

The selected candidates will be expected to participate in the teaching and research programmes in the concerned disciplines in other Schools of the University as well as in the programmes offered in their own Schools/Centres of Studies.

Normally, appointment of Fellows is made on contract basis for a period ranging from one to three years.

Benefits of C.P. Fund-cum-Gratuity/G.P. Fund-cum-Pension-cum-Gratuity are available as per University rules.

Persons already in employment should route their applications through proper channel.

Due consideration will be given to candidates belonging to Scheduled Castes/Scheduled Tribes at the level of Assistant Professor.

Second class (Mail) rail fare (both ways) will be paid to candidates invited to appear for interview from outstation by the shortest route.

Applications spearate for each post, on the prescribed form, obtainable free of cost from the Section Officer (Acad. Branch-III) of the University by sending him a self-addressed stamped envelope (affixing postage stamps worth **Rs. 3.25**) of 23 cm. x 10 cm. size, should reach the Assistant Registrar (Academic & Estb.), Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067, latest by **29th September, 1982.**

Candidates from abroad, applying for the faculty positions may apply on plain paper, (but their applications should reach the University by the last date) furnishing all the relevant information such as their name, date of birth and place, marital status, nationality; state of domicile, postal and permanent addresses; father's name and address; academic and professional attainments with full details of (a) publications, and (b) research projects undertaken; languages (s) known details of visits to foreign countries; and the names and addresses of at least two persons well acquainted with the candidate's professional work who should also be requested by the candidate to forward to the Assistant Registrar (Academic & Estb.) confidential report concerning the candidate.

PUNJABI UNIVERSITY

PATIALA

Advertisement No. 20A PRO/Estt./Augustr. 1982

1. **Professor in Botany : (One)** (Grade Rs. 1500-60-1800-100-2000-125/2-2500)

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. **Readers. (One each in Human Biology, Astronomy and Space Science and Economics)**
(Grade : Rs. 1200-50-1300-60-1900)

Qualifications

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the

case of candidates with outstanding research work.

Specialization

Reader in Human Biology

"Should have the evidence of specialising in Human Ecology/Biological Demography."

3. **Lecturers**: (One each in Astronomy and Space Science, Public Administration, Economics & Business Management (Managerial Economics)
(Grade Rs. 700-40-1100-50-1600)
(Leave vacancy upto 21-7-85)

Qualifications

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class (3 in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Specialisations

Lecturer in Business Management (Managerial Economics)

The candidate should have required qualifications in Economics. He would be expected to impart knowledge of various tools of economic analysis for business decisions both at the macro and micro levels. Preference would be given to a candidate with ability to teach statistics.

4.—**Research Assistant in Zoology: (One)**

(Grade : Rs. 550-20-650-25-750)

Qualifications

Master's degree in (Zoology) with atleast 55% marks and with three years research experience.

Preference would be given to candidates having knowledge of store accounts and experience in store-purchases.

5. **Junior Research Fellow UGC : (One in English)**

(@ Rs. 600/- p.m. all inclusive)

Qualifications

Junior Fellowships is open to persons preferably below the age of 30 years who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B+ in the seven point grade system).

6. **Research Scholars** : (Three in Astronomy and Space Science and one in Sociology and Social Anthropology).

(Tenable for two years in the first instance & Rs. 600/- p.m. all inclusive)

Qualifications

Candidates should possess at least second class Master degree with at least one year teaching/research experience after obtaining Master's degree provided that the condition of experience may be relaxed in the case of first class M.A.'s/M.Sc.'s provided further that a candidate with at least 55% marks both in B.A./B.Sc. and M.A./M.Sc. could also be considered in case no first class M.A./M.Sc. is available.

UNIVERSITY SERVICE & INSTRUMENTATION CENTRE

7. **Technician 'C' (Electronics)** (Grade) Rs. 380-12-500/15-560)

Certificate course from I.T.I. in Electronics/Electrical Engineering with 5 years experience.

8. **Workshop Attendant:** (Two) (Grade Rs. 325-5-350/10-400/10-450/15-495)

I.T.I. with a trade relevant to mechanical/electrical/electronics/glass blowing/optics and with experience in the repair of instruments/equipment/apparatus used in Industry/Teaching/Research. with 2-3 years experience.

UNIVERSITY PRESS & CORRESPONDENCE COURSES

9. **Copy Holder:** (Grade Rs. 400-10-450/15-525/15-600/20-660)

Atleast 2nd class Matriculate with Punjabi as one of the subjects. Candidates with experience in a good press or newspaper will be given preference.

General

Candidates for teaching & research posts should possess working knowledge of Punjabi upto Punjabi Preveshka standard. Persons from outside Punjab could however be considered for appointment [illegible] under [illegible] acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth Rs. 5/- (Rs. 2/- for candidates belonging to Scheduled caste/tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala, should reach the University by **28-9-82**. The forms can be had from the Production & Sales Officer, Publication Bureau, Punjabi University, Patiala on payment of Re. 1/- by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25×10 cms. stamped with **50 paise** postage which should be superscribed at the top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF——.

Persons already in service should apply through proper channel. Those who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **30-9-82**.

REGISTRAR

UNIVERSITY NEWS

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Years	Inland (Rs.)	Foreign Surface Mail (Rs.)	Foreign Air Mail (Rs.)
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2 years	40.00	180.00	330.00
3 years	54.00	250.00	470.00
5 years	80.00		
Single copy	1.25	5.00	10.00

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY

BOMBAY-400 020

S.N.D.T. WOMEN'S UNIVERSITY, 1, Nathibai Thackersey Road, Bombay 400 020, invites applications before **September 15, 1982** in prescribed forms available at **Rs. 5/-** (cash or postal order) for the following posts to be filled in at its conducted *institutions* at Bombay and Pune :

	No. of posts	Media of teaching
(a) Department of Post-Graduate Studies & Research, S.N.D.T. Women's University, Bombay.		
1. Professor of Economics	One	English
2. Professor of Sociology	One	English
3. Professor of Psychology	One	English
4. Reader in Art & Painting	One	English
5. Reader in Gujarati	One	Gujarati
6. Reader in Psychology	One	English
7. Co-Ordinator (Sociology): Tenure post (in Reader's scale for University Leadership Programme)	One	—
8. Research Assistant (Gujarati Dept.)	Two	—
9. Laboratory Assistant (Psychology Dept.)	One	—
10. Documentalist: (Tenure post for U.L.P.) Minimum Graduate with B.Lib. Sc. or Diploma in Lib. Sc.)	One	—
(b) S.N.D.T. Arts & Commerce College for Women, Bombay.		
1. Lecturer *in* Art & Painting	One	Eng & Mar
2. Lecturer in History	One	Gujarati
3. Lecturer in Instrumental Music (Sitar)	One	—
(c) P.V.D.T. College of Education, Bombay		
1. Reader in Education (For Language Teaching with proficiency in English and good knowledge of Marathi/Gujarati)	One	—
2. Reader *in Education*/Sociology/Psychology/Economics for Interdisciplinary research.	One	—
3. Technician for Language Laboratory (Minimum S.S.C. with certificate course in Radio Engineering and experience of repairing tape recorders)	One	—
(d) S.N.D.T. College of Education, Pune		
1. Reader in Education (For Science and Maths. education)	One	Marathi/ English
(e) Sir Vithaldas Thackersey College of Home Science, Bombay (Juhu Campus)		
1. Professor of Child Development	*One*	*English*
2. Professor of Extension & Education	One	English
3. Reader in Extension & Education	One	English
4. Reader in Home Management	One	English
5. Reader in Foods & Nutrition	One	English
6. Lecturer in Textiles & Clothing	Five	English
7. Lecturer in Foods & Nutrition	One	English
(f) S.N.D.T. College of Home Science. Pune		
1. Professor of Foods & Nutrition	One	English
2. Reader in Foods & Nutrition	One	English
3. *Lecturer in Textiles & Clothing*	One	Eng & Mar
4. Lecturer in Foods & Nutrition	One	Eng & Mar
(g) C.U. Shah College of Pharmacy, Bombay		
1. Professor of Pharmaceutical Chemistry	One	English
2. Reader in Pharmaeutics	One	English
3. Reader/Lecturer in Pharmaceutical Chemistry (Temporary)	One	English
4. Lecturer in Pharmaceutics	One	English
5. Lecturer in Pharmaceutical Engineering	One	English
(h) H.P.T. College of Science, Bombay		
1. Lecturer in Chemistry	One	English
(i) Premlila Vithaldas Polytechnic, Bombay		
1. Head, Department of Food Technology	One	English
2. Lecturer *in* Microbiology	One	English
3. Lecturer/Instructor in Art	One	English
4. Lecturer/Instructor in Interior Design	One	English
(j) Department of Correspondence Course, S.N.D.T. Women's University, Bombay		
1. Director *(in the scale of Professor)*	*One*	—
2. Co-ordinators: (Academic) (in the scale of Lecturer)		
(a) Languages (Eng./Mar./Guj.)	One	—
(b) Social Sciences (Soc./Eco./His./Politics)	One	—
(c) Commerce	One	—

Minimum qualifications, salary scale etc. for the post are as per U.G.C. norms. Details available with application forms. Candidates who have applied for the above posts recently need not apply again. Applications of Scheduled Castes/Tribes/Other Nomadic Tribes etc. will be considered as per Government directives. A few staff quarters available for senior cadre out of station selected candidates. Knowledge of Marathi/Gujarati essential besides fluency in English, except for those *posts where the medium of teaching is English.*

Smt. Kamalini H. Bhansali
REGISTRAR

OSMANIA UNIVERSITY

HYDERABAD-500007.

Advertisement No. 6/82

Dated 13-8-1982

Applications in the prescribed form together with the registration fee of **Rs. 5/-** through M.O./I.P.O./Challan 'A' are *invited for* the following posts in the University Service, so as to reach the undersigned on or before **13-9-1982**:—

1. **Reader *in Zoology*** : Rs. 1200-1900 (lien vacancy)

2. **Reader in Journalism**: Rs. 1200-1900

Age : Not above (40) years.

Note: Age limit does not apply to the employees of this University.

Application forms can be had from the Director, University Press, Osmania University, Hyderabad on payment of **Rs. 4-50** *in person* or M.O. or I.P.O. UNCROSSED made payable to the Director, University Press, O.U. and by sending a self *addressed* envelope (11½ x 26½ cms.) duly stamped for ordinary or registered post.

Full particulars can be obtained from the *Director, University Press,* O.U. on requisition, **free of cost**, by sending a self-addressed stamped envelope.

B. Ramachandra Reddy
REGITSRAR

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

HYDERABAD-500007

CORRIGENDUM

Reference: Advertisement No. XI/82 for Teaching posts.

The last date for receipt of applications has been extended upto **20-9-1982**.

I.V. Chalapati Rao
REGISTRAR

KUMAUN UNIVERSITY, NAINITAL

Advertisement No. 713 **Dated: 17-8-1982**

Applications For the following posts are invited by **1-10-1982** on the prescribed form obtainable from the Registrar, Kumaun University, Nainital-263001, U.P. by sending a self addressed 9″ x 6″ envelope. Please enclose a crossed postal order/bank draft of Rs 5/- payable to the Finance Officer, Kumaun University, Nainital for postal charges etc. (Money is not to be sent by M.O.). Candidates who have already applied in response to the advertisement no. 1229, **dated 4.8.1981** for the post of Professor Zoology, Reader History and Lecturers Economcs, Commerce, Botany, Zoology, English and Advertisement no. 1987, **dated 20.10.1981** for Lecturer Geology need not apply again.

Sl. No.	Department	Professor (1500-2500)	Reader (1200-1900)	Lecturers (700-1600)	Specialization
1.	Chemistry	1 TLR	—	—	—
2.	Sociology	1 TLR	—	1 R	Sociology of Deviance/or Social Psychology
3.	Zoology	1 TLR	—	1 TLR	Fishery biology Preferable for Lect.
4.	History	—	1 TLR	—	—
5.	Education	—	—	2 1 R 1 TLR	Comparative Ed./Educational Admn. & Supervision. Teaching Eng.or Geog*
6.	Geology	1 (Leavd vacancy for 2 yrs)	—	1 TLR	Palaeontology for Lecturer
7.	English	—	—	3 1 TLR 2 Leave vacancy	Linguistics preferable
8.	Economics	—	—	2 1 TLR 1 Leave vacancy	
9.	Commerce	—	—	2 1 TLR 1 Leave vacancy	
10.	Botany	—	—	1 TLR	Plant Physiology/Microbiology/Plant Pathology/Ecology
11.	Sanskrit	—	—	1 TLR	—

* M.A. (English) with History/Geography/ Pol. Science in B.A. or M.A. (Geography) with English in B.A.

NOTE: R, imply regular (permanent), TLR imply temporary likely to be regular.

Qualifications

For Lecturers in Arts (except Music) Science & Commerce Faculty

(a) a doctorate degree or research work of an equally high standard in relevant subject, **and**

(b) consistently good academic record with first or high second class Master's degree or an equivalent degree of a foreign University in relevant subject.

For Lecturer in Education Faculty

Either

(a) a doctorate degree in Education or research work of an equally high standard; **and**

(b) consistently good academic record with first or high second class master's degree of an equivalent degree of a foreign University in relevant subject.

OR

(a) doctorate degree in any relevant or related discipline or research work of an equally high standard; **and**

(b) consistently good academic record with M.Phil. degree in Education or an equivalent degree of a foreign University.

For Reader in Arts (except Music), Science & Commerce Faculty

(i) good academic record with a doctorate degree or equivalent published work, and active engagement in research or innovation in teaching methods or production of teaching materials; **and**

(ii) five years experience of teaching or research including at least three years as lecturer or in equivalent position.

For Professor Arts, Science & Commerce Faculty

Either

Eminent scholar with published work of high quality and active engagement in research and ten years experience of teaching or research and experience of guiding research at doctorate level;

OR

Outstanding scholarship with established reputation for significant contribution to knowledge.

Further details regarding qualification, service terms and permissible relaxation in qualifications will be provided with the application forms. Preference will be given to SC/ST candidates if otherwise considered suitable by the Selection Committee.

REGISTRAR

UNIVERSITY OF DELHI

Advt. No. Estab. IV/76/82
Dated 18th August, 1982

Applications on the prescribed form are invited for the following posts:—

Department	Designation
Non-Collegiate Women's Education Board	One Co-ordinator (only women candidates need apply)
Central Office	Driver (Reserved for Scheduled Tribe/ Scheduled Caste)

The scales of pay of the posts are:

Co-ordinator : Rs. 1500-60-1800-100-2000-125/2-2500

Driver : Rs. 260-6-290-EB-6-326-8-366-8-390-10-400

The posts carry D.A., C.C.A. and H.R.A. as admissible under the rules in force in the University from time to time.

Essential Qualifications

Co-ordinator: Good academic record with a first or high Second Class Master's Degree with Doctor's Degree or equivalent published work and teaching experience of Degree Classes of not less than 10 years. **OR**

Good academic record with a first or High Second Class Master's degree with teaching experience of Degree Classes of not less than 15 years.

Driver: Should have a valid licence for driving cars and also Three Wheelers as driver. Professional skill in driving, motor mechanics and general smartness with polite manners.

Special/Desirable Qualifications

Co-ordinator: Administrative experience in a recognised institution teaching degree classes or above.

Driver: A pass in middle school standard. Preferably young and active.

The prescribed application form can be had from the Information Section of the University either personally or by sending a self addressed envelope (size 13 cm × 28cm) with postage stamps worth Rs. **3.45** p.

The candidates will have to produce the original documents relating to their age, qualifications, experience etc. at the time of interview.

Application (separate for each post) accompanied by attested copies of Degrees, other certificates, marksheets, published research articles, etc. should be addressed to the Registrar. The last date for receipt of the applications is **18-9-1982.**

Note

1. It will be open to the University to consider the names of suitable candidates for the post of Co-ordinator who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, on the recommendation of the Selection Committee.
2. Canvassing in any form by or on behalf of the candidates will disqualify.
3. Candidates from outside Delhi, for the post of Co-ordinator, called for interview will be paid to and fro single second class rail fare.
4. The University reserves the right not to fill up any of the vacancies advertised, if the circumstances so warrant.

REGISTRAR

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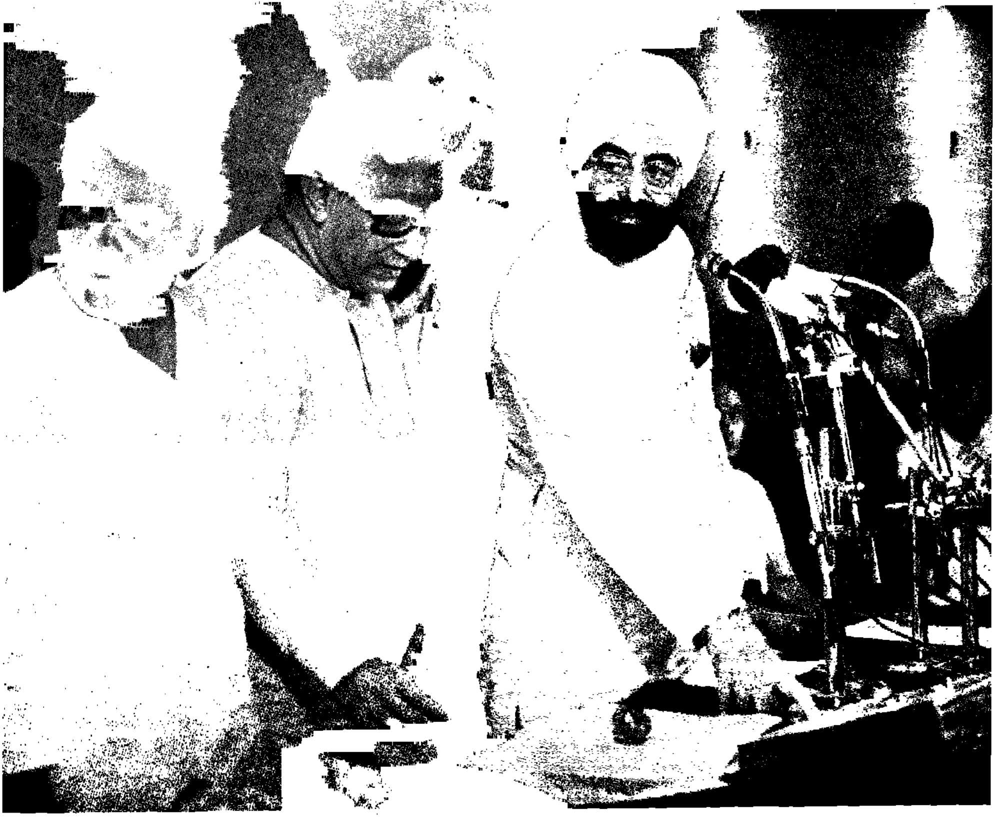
University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH SEPTEMBER 15, 1982



President Zail Singh inaugurating the Open University at Nagarjunasagar. On his right are : Mr B. Venkataram, Chief Minister and Mr. K. Keshav Rao, Education Minister of Andhra Pradesh.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF POONA

GANESHKHIND, PUNE-7

Advertisement No. 1/1982

Applications in prescribed form are invited for following posts on or before **30th September 1982.**

Posts	Pay Scale
1. **Professor (one)**	Rs. 1500—2500
2. **Reader (one)**	Rs. 1200—1900
3. **Lecturers (two)**	Rs. 700—1600
4. **System Analyst (one)**	Rs. 1200—1900
5. **Programmer (one)**	Rs. 700—1300
	Plus Allowances

The posts are for a period of 5 years for the present, and are likely to be permanent.

The University proposes to start a three-year postgraduate Master of Computer Applications (MCA) Programme from the academic year 1982-83. This programme is being started on recommendations of the Computer Man Power Development Panel constituted by the Electronics Commission.

Minimum Qualifications

Professor & Reader

(i) (a) A doctor's degree with at least a second class bachelor's degree OR (b) A first or second class master's degree by research, OR (c) A first or second class bachelor's degree, with master's degree if the same is not awarded with classes, OR (d) Any other equivalent degree or degrees of an Indian or a Foreign University.

(ii) (a) Some experience of teaching, OR (b) published independent research work.

Lecturer

A doctor's degree or Masters degree in a related subject with sufficiently long experience in use of computers and also some experience in teaching "Computing".

System Analyst

Master's degree. Preference will be given to those with post-graduate qualifications in computer science. Should have minimum 5 years' experience in system design and development and programming in FORTRAN COBOL and working on a 3rd generation computer.

Programmer

Master's level degree with 2 years' experience; or post-graduate diploma with 3 years' experience; or graduate degree with 6 years in computer programming in FORTRAN COBOL. Some knowledge of at least one operating system desirable.

Upper Age Limit

Professor 50 years, Readers Systems Analyst 45 years, and Lecturers Programmers 35 years.

Half the number of posts are reserved for candidates belonging to SC/ST D.T.N.T.

Application forms and requisite details for post No. 1, 2 and 3 available personally on payment of **Rs. 10/-** in cash in the University OR on request accompanied by a self addressed envelope (23cm × 10cm) bearing postal stamps worth **Rs. 2.30** and a Postal Order of **Rs. 10/-** in the name of Registrar, separately for each post. Application forms for posts Nos. 4 & 5 are available on payment of **Rs. 2/-** for each post, in the above manner.

Note: Some of the conditions may be relaxed in exceptionally capable candidate.

S.P. Bhosale
REGISTRAR

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 6/82

Applications on the prescribed form are invited (through proper channel in the case of those already in employment) for the following posts existing in the University College, Rohtak:

Lecturers in

Hindi, Sanskrit, Military Sciencee, Botany, Political Science, History, Psychology, Commerce, Mathematics and Public Administration.

Qualifications

(a) Consistently good academic record. First or high second class (B in the seven point scale) Master's degree in the relevant subject from an Indian University or an equivalent degree from a foreign University; and

(b) An M.Phil degree or a recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research work.

(c) Knowledge of Hindi.

(d) Conditions relaxable at the discretion of the Selection Committee.

Directors Physical Education (Rs. 550-25-750/30-900)

Qualifications : Essential

M.P. Ed. or M.A./M.Sc. with D.P.Ed.

Desirable: N.I.S. trained College or University experience preferred.

Non-teaching Posts

Sr. Librarian (Rs. 550-25-750/30-900)

Second class M.A./M.Sc./M.Com. and Second class B.Lib. Science.

Jr. Librarian: (Rs. 420-10-490/525-15-600-EB-20-700)

(i) B.A./B.Sc./B.Com.

(ii) Certificate in Lib. Science.

Type Writing Instructors (Rs. 420-10-490/525-15-600-EB-20-700) B.A. with Diploma in Stenography.

Sr. Lecturer: Assistants (Rs. 400-10-490/540-15-600-EB-20-660)

Matric with science, knowledge of typing, 5 years' experience of working in Science Laboratory in a College.

Jr. Lecture Assistants (Rs. 400-10-490-/540-15-600)

Matric with Science, knowledge of typing, 3 years' experience of working in Science Laboratory in a College.

Gas Men: (Rs. 350-5-400-10-500)

Matric with science, knowledge of preparation of oil gas in a Science Laboratory in a College.

Steno-Typists (English): (University Office) (Rs. 400-10-490/540-15-600-EB-20-660, Rs. 50/- Spl. Pay)

Second class Matriculate/Higher Secondary/Pre-University Intermediate with 80 w.p.m. speed in English shorthand and to transcribe it at a speed of 15 w.p.m.

U.G.C. pay scales for all categories of teaching posts with usual allowances and benefit of contributory Provident Fund admissible as per University rules. Reservation for Ex-Servicemen/BC, SC/ST candidates as per rules. (No application fee payable by them). Higher start admissible in deserving cases. Knowledge of Hindi is essential for all posts.

Applications on prescribed form (except non-teaching posts in whose case the applications are to be sent on plain paper), with attested testimonials and crossed Postal Order(s) for **Rs. 10/-** drawn in favour of the Chief Accounts Officer payable at Post Office, Rohtak be sent to the Registrar so as to reach by **30.9.1982.** The application forms can be had from the Assistant Registrar (General) on payment of **Rs. 2/-** at the Counter and **Rs. 3/-** by ordinary post.

REGISTRAR

UNIVERSITY NEWS

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No. 18 1982

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Price Re. 1.25

IN THIS ISSUE

Basic Goals of a University Education in the light of General Social Development 574

Convocation

Indian University Today 579

Campus News

BITS students evolve code of conduct for student elections 582
Silver Jubilee of IIT, Bombay 582
Third All India Seminar on Ichthyology 583
Superheavy elements in nature 584
Statutory grants to GU, DU raised 585

Agriculture

JNKVV sanctioned six new ICAR schemes 587
Konkan Krishi Vidyapeeth develops bullock drawn paddy puddler 587
Plant gene marker cloned 588
Research in Progress 592
Theses of the Month 593
Additions to AIU Library 597
Classified Advertisements 598

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

An Open University in Andhra

President Zail Singh, inaugurating the Open University at Nagarjunasagar in Andhra Pradesh on August 26, 1982, congratulated the State Government on the step taken which would help 'several less fortunate people and others who could not afford formal education in pursuing their education at their own convenience'. That is the theme. The concept of an Open University however is not new to the world or even to India. While the world has seen an Open University functioning for over 10 years now, three Indian universities—Mysore, Madurai Kamaraj and SNDT Women's — established open universities in the last few years. These Indian open universities however function within the existing set up of the university. The Open University at Andhra Pradesh on the other hand is the first full-fledged university in this country designed exclusively for 'distance learning'. The selectivity involved in the process of admission to a formal education in a university, arising out of the rigidity of the system, gives place to an open access in the open university because of its flexibility. In a way the university is at the doorstep of the learner rather than the learner having to knock at the door of the university

The report of the committee headed by Prof. G. Ram Reddi, Vice-Chancellor, Osmania University, which recommended the establishment of the Open University in Andhra Pradesh states: "There is growing awareness that correspondence courses need to be updated and supplemented with latest educational technology and more comprehensive programme of counselling and tutorial facilities at the study centres to improve the functional quality of education. In respect of other external students, we have also to provide them necessary learning materials through print media, radio, TV and audio-visual and counselling/tutorial facilities to improve the quality of the products of the higher education. This could only be achieved by starting an Open University in the State" (Para 2.24) Use of radio, TV, tapes, videos and other technological aids will form an integral part of the overall teaching process through correspondence courses as visualised in the report. For the contact programmes of the new Open University, one college in each of the 24 districts of Andhra Pradesh will serve as a study centre. This indicates how the Open University, while augmenting the considerable facilities that already exist in the shape of part-time education, correspondence study and private appearance in many universities in India, is going to improve the teaching process.

The corner stone of organisation and functioning of the Open University, as is apparent from the wide ranging recommendations in the report, is 'flexibility', This distinguishes the Open University from the other universities imparting formal education where it is rigid, somewhat. In what manner? This report envisages that through the open university 'there will be equalisation of educational opportunities', 'education becoming a recurrent with educational opportunity spread out over the individual life time', 'harmonising learning activities with the professional experience and work', 'offering diversified courses which are socially relevant, economically productive and environmental based', etc. Even the administrative structure proposed for the university shows departures from the more common pattern existing in India. These affirmations in the report bring out the distinction quite lucidly.

This 'flexibility' will be the new university's strengths. It will also be a trial of strength of those who will be in charge of drawing up the courses and organising the activities. Thus, in many respects the new 'Open University' in Andhra Pradesh is a happening in the higher education scene in India. Given the right initial thrust there is no reason why this experiment should not be a success in India as in other parts of the world, notably U.K. We wish the University all success.

10.9.82 **—Editor**

Basic Goals of a University Education in the light of General Social Development

“. . Universities have now come to be regarded as the ‘conscience of the nation’, and ‘assessors of the national way of life’. What does a university stand for? What are the basic goals of university education in the light of general social development and contemporary teaching technology? These questions regarding the values universities are expected to uphold, their scope and functions to meet the needs of rapidly changing and complex contemporary societies have become matters of great importance to all countries of the world developed or developing. These questions have been greatly agitating the minds of scholars, educationists and leaders of public opinion in my country also ever since we gained our Independence and were in a position to shape our own destiny, after breaking the shackles of colonial rule In 1947, the year of our Independence, Pandit Jawaharlal Nehru, our great leader and Prime Minister, while delivering the Convocation Address at one of our older universities, the University of Allahabad, said: “A university stands for humanism, for tolerance, for reason, for the adventure of ideas and for the search for truth. It stands for the onward march of the human race towards even higher objectives. If the universities discharge their duties adequately, then it is well with the nation and the people ”

This is the text of a paper presented by Dr. Ramesh Mohan, President, Association of Indian Universities & Director, Central Institute of English & Foreign Languages at the seminar on “University Today” held recently at Yugoslavia. Dr. Ramesh Mohan was nominated by the University Grants Commission to attend the Seminar.

This statement, delivered with great felicity of phrase, broadly enunciating the ideals to be pursued by a university, also implied that the aim of a university, in modern times could not remain confined to the imparting of “liberal knowledge” and cultivation of the intellect”. The universities also had an important social function, and had to discharge their duties and responsibilities adequately for the strength and well-being of the nation and the people

The main object of the universities first set up in India by the British rulers in 1857 at Calcutta, Bombay and Madras was ‘the diffusion of the improved arts, science, philosophy and literature of Europe, in short of European knowledge’ through English education. They were not set up to meet the needs of the country’s intellectual, social, cultural and economic development Modelled after the pattern of London University in mid-nineteenth century, they were of the affiliating type, their primary function being to conduct examinations and regulate the admission of candidates to these through a supervision. of the places of instruction. They were in a way exotic plants, not rooted in the land in which they were planted. They had no links with the past traditions of the great centres of learning in ancient India such as at Taksasila and Nalanda or the famous centres of Islamic learning in medieval India. The two other universities which were subsequently established in the 19th century, the Punjab and Allahabad Universities, followed the same pattern, were also purely affiliating bodies, though by then London University, which had served as a model for these, itself had given up its affiliating character and incorporated constituent colleges. After the report of the Calcutta University Commission of 1919, known as the Sadler Commission, some modifications were made in the structure and curriculm of the universities to combine what was best in the ancient traditions of India with what was best in the educational aspirations of the west, and unitary, teaching universities were established at a few places to organise post-graduate teaching and research. But these did not mean any fundamental changes in the official policy regarding higher education or in its quality and content to make it relevant to the country’s socio-economic requirements

Soon after Independence, in 1948, the Government of India appointed a Universities Commission, headed by a distinguished educationist and philosopher, Dr. Sarvepalli Radhakrishnan (who later became the Vice-President and subsequently the President of India). to report on Indian University Education and suggest improvements and extensions that might be desirable to suit present and future requirements of the country It was realised that to meet the needs and aspirations of Independent India, the aims of higher education could not be the same as originally pursued by a colonial power for its own ends, ‘to form a class of perons Indian in blood and colour, but English in tastes, in opinions, in morals and in intellect, a class who would serve as interpreters between the rulers and the millions they governed, and who. by refining the vernaculars would supply, the means of a widespread dissemination and promotion of European literature and science among the natives of India through English education’. For a time the Indian intellectuals supported this endeavour, although, ironically and inevitably, this education was one of the primary factors in fostering the spirit of nationalism and inspired the struggle for Independence, which ultimately resulted in the overthrow of the colonial rule.

The Radhakrishnan Commission redefined the aims and goals of university education in India and stressed, for the first time, the need to relate education to the social and economic needs of the country. The following few extracts from its Report are worth quoting in this context :

> "We have now a wider conception of the duties and responsibilities of universities. They have to provide leadership in politics and administration, the professions, industry and commerce. They have to meet the increasing demand for every type of higher education, literary and scientific, technical and professional. They must enable the country to attain, in as short a time as possible, freedom from want, disease and ignorance, by the application and development of scientific and technical knowledge."
>
> (Chapter II, 1)
>
> "Our educational system must find its guiding principle in the aims of the social order for which it prepares, in the nature of the civilisation it hopes to build"
>
> (Chapter II, 6)
>
> "Democracy depends for its very life on a high standard of general, vocational and professional education. Dissemination of learning, incessant search for new knowledge, unceasing effort to plumb the meaning of life, provision for professional education to satisfy the occupational needs of our society are vital tasks of higher education.... Our policies and programmes must be brought into line with these social purposes which we profess to serve."

A similar view was expressed by an eminent British educationist, Alexander Meekle John, in the context of the Experimental College in the U.K.:

> "The closeness of connection between the character of a socioty and the character of its education cannot be too strongly stressed. Schools and colleses are not something apart from the social order to which they belong. They are that order trying to prepare its youths for participation in its own activities. And a society can only teach the hopes, the knowledge, the values, the beliefs it has." (Quoted by F.R.Leavis in his book *Education and the University* (1948)

The subsequent Education Commission, appointed by the Government of India in 1964 under the leadership of Dr D.S. Kothari (the then Chairman of the Universities Grants Commission) to advise Government on the national pattern of education and on the general principles and policies for the development of education at all stages and in all aspects, reiterated the view held by the earlier Commission when it stated:

> "No reform is more important or more urgent than to transform education, to endeavour to relate it to the life, needs and aspirations of the people and thereby make it a powerful instrument of social, economic and cultural transformation necessary for the realisation of our national goals."
>
> (Chapter I, 1.20)

The Kothari Commission was of the opinion that to realise the national goals, education should be related to productivity by laying emphasis on science as a basic component of education and culture, on work experience as an integral part of all education, general or vocational, on vocationalisation of education, and on the improvement of scientific and technological education and research at the university stage.

It is now widely accepted that a university cannot remain an ivory tower, a home of intellectual adventure for the pursuit of knowledge, research and academic excellence as an end in itself, completely isolated from and oblivious of the strife and struggle of the madding crowd outside its portals. It has to play an active and positive role in solving both national and international problems, and make a leading and dynamic contribution towards national development and towards the building up of a mature and stable society in this world of bewildering change.

At a Round Table discussion held in Delhi in April this year, on the occasion of the meeting of the Administrative Board of the International Association of Universities, the topic of discussion was "Education as an essential ingredient of progress and corner stone of a just society".

While participants, who came from different countries of the world may have differed in their definition of a 'just society', there was no difference of opinion about the social responsibilities of university education.

Even in Great Britain, there has been a marked change in the social position and social function of British universities since the middle of this century, in view of the changed social and economic conditions in Britain, although in Britain it was maintained for long that the main objective of British universities was to provide a liberal education and that they had no conscious role to play in respect of the general purposes of society. The Committee on Higher Education appointed by the British Government in 1961 under the chairmanship of Lord Robbins considered the purpose and general social ends to be served by higher education and stated the following main objectives as essential to any properly balanced system of higher education: (1) Instruction and skills of some practical use demanding special training, concerned with practical techniques, to be imparted on a plane of generality that may make their application possible to many problems; (2) The advancement of learning and a proper balance between teaching and research; (3) The transmission of a common culture and common standards of citizenship in order to pursue the ideal of equality of opportunity and to compensate for any inequalities of home background. Evidently, these stated objectives underlined the view that along with the pursuit of learning and excellence, the universities were also expected to contribute to social economic development.

As stated earlier, the guiding principles of any educational system will have to lie in the aims of the social order and the nature of civilisation it is expected to build. We in India decided to build and develop a 'Sovereign Democratic Republic' and 'to secure to all its citizens social, economic and political justice, liberty of thought, expression, belief and faith and equality of status and opportunity'. Our system of education had naturally to be geared to the needs of a democratic society, committed to the ideals of secularism and socialism. During the last 35 years, our major emphasis has been on expansion of facilities and equalisation of educational opportunities to provide universal primary education for all children in the age group of 6-14, to improve the quality of secondary and university education and to maintain high standards. But, inspite of our best efforts, we have not yet been able to reach the targets aimed at and are still short of achieving our professed goals. The magnitude of the problem in the field of higher education will be evident from the fact that we have today about 120 universities and institutions of higher learning, 4500 colleges and an enrolment of about 2.7 million in our universities as compared to 19 universities, 636 colleges and an enrolment of 2,56,000 in 1947. While before Independence, most of the students undertaking higher education came from the urban and well-to-do classes and the upper castes, there is now an increasing number from the rural areas and the less privileged groups, most of whom are first generation learners. Along with quantitative expansion, we have to strive for qualitative improvement and the maintenance of standards. The fruits of good education are still not available to a large section of the community, and university education to a certain extent, still continues to be somewhat elitist. If the right to education, which our Constitution provides for, has to be made a reality, and we are to achieve our goals of national development, we would need to provide for higher education to a much larger number. The number of our universities and colleges and the enrolment therein is still very much less in proportion to our population. But considering the financial constraints and shortage of teachers of good quality, any expansion of the system of higher education has to be carefully regulated and related to social and economic needs and productivity. For this we need to strengthen and restructure our secondary education and vocationalize it to considerable extent, so that all school leavers need not seek entry into a university for want of nothing elseto do.

To pursue the basic goals of a university education with any measure of success in a rapidly changing and complex, multi-lingual and multi-cultural society such as ours, what is urgently needed is a radical reform in the structure of our universities, in methods of teaching and training, in the curricula and courses of study, in instructional materials and techniques, and in the system of examinations. Unfortunately, our present system, a legacy inherited from the British, has not proved flexibleor dynamic enough to incorporate bold innovations needed for higher education to meet the needs and aspirations of both the urban and rural community and to serve as an effective instrument of socio-economic development and change.

If the formal system of education cannot meet the demand of increasing numbers aspiring for education we have to adopt the means of non-formal education through correspondence courses for a larger outreach. Some of the developed countries such as USA, USSR, Sweden, Japan and Australia have met the challenges of mass higher education through these means. The Open University in Britain has been a notable effort in this direction, and has shown how distance teaching, making use of the resources of modern educational technology, can meet the demands of mass higher education of a high standard.

Many of our own universities have introduced correspondence courses, in some cases on a fairly large scale, but they still need proper and effective organisation and implementation. Also the emphasis has to shift from examinations and award of degrees to fruitful learning and teaching. We need to evolve new methodologies and techniques of teaching, which are more student-centred than teacher-oriented, and which are dynamic and problem solving.

All this requires a well-planned programme of training of teachers and specialists. In view of the scarcity of well-trained and competent teachers, we have to take the help of the mass media, such as radio/TV/tapes/films and educational technology, by which the skill and knowledge of a few trained and competent teachers and scholars can be made available to a large body of students even outside the classrooms. Most of the existing syllabuses at the university level need to be re-structured in the light of the rapid growth of knowledge in every field and in the light of the social responsibilities of university education. Most of them are outdated and traditional. They have to be diversified to provide for problem oriented and inter-disciplinary studies, and to promote communication skills. Correspandingly, the instructional materials being used have to be greatly improved and carefully devised. Admissions have to be regulated according to merit, keeping in view the intake capacity of each institution. Unrestricted admissions inevitably lower the standards. Above all, a radical reform is needed in our present examination system, which, apart from being unmanageable when large numbers are involved, encourages selective study and rote learning and discourages innovative teaching and serious and sustained study.

In spite of much inertia and indifference that still prevails, there is a growing awareness of the above deficiencies in our university system. In recent years, the University Grants Commission of India, which was set up by an Act of Parliament in 1956 as an autonomous, statutory body, responsible for the promotion and coordination of university education and maintenance of standards of teaching, examination and research in universities, has taken a bold lead in this direction. In consultation and discussion with the universities and eminent academics and scholars from various parts of the country, it has prepared guidelines for the restructuring of syllabuses, both at the undergraduate and post-graduate level. At the undergraduate level, emphasis is being laid on the restructuring of courses to make education more relevant to the rural environment and to the development needs of the community, and to link theory with field work and practical experience. The UGC is supporting, quite generously, meaningful research through award of research grants, and has been encouraging initiatives in innovative teaching methodology, improved instructional materials, non-formal education, distance teaching, educational technology, programmes of community service and educational extension, Adult Education and Continuing Education.

It has promoted interdisciplinary studies and area studies and inclusion of vocational courses at the first degree level. It has tried to bring into the university system a few selected institutions of higher learning carrying on teaching and research in certain specialised fields, by recognising them as institutions 'deemed to be universities' under the UGC Act. My own institution, the Central Institute of English and Foreign Languages, belongs to this category. The UGC has encouraged collaboration between universities and institutions outside the university system such as national research laboratories in science and technology, Agricultural Universities and Medical Colleges and Institutes. It has encouraged international collaboration and exchange of scholars through Cultural Exchange Programmes with a number of foreign countries.

In its general approach to programmes of development in our universities, the UGC has laid great emphasis on consolidation, flexibility, and the reorientation of the existing departments towards special needs, specially those of the under developed sections and more particularly of those living in rural areas.

The UGC is also paying due attention to the educational needs of the weaker and socially deprived sections of society in the interests of social justice. It has relaxed the conditions of assistance in women's colleges, in colleges where 50% of the enrolment consists of students from Scheduled Castes and Scheduled Tribes, and colleges situated in backward areas. It has provided for the reservation of 20% of the seats in the hostels for Scheduled Castes and Scheduled Tribes. It has also earmarked a number of junior and senior Research Fellowships for students from this class and for students of border hill areas. Reservation for qualified Scheduled Castes candidates is provided even in teaching posts upto the level of lecturers in the universities.

Since most of our universities are affiliating universities, the bulk of teaching is done in the affiliated colleges, which number about 4500. A large majority of them are undergraduate colleges. The few, which are postgraduate, enrol more than 50% of the post-graduate students, and serve as feeders to post-graduate departments of the universities. It is obviously not possible to raise standard without raising them in respect of affiliated colleges. The UGC has now put a moratorium on the estbalishment of academically non-viable colleges. Its policy in regard to development of colleges is governed by two factors : (1) removal of disparities and regional imbalance; (2) improvement of standard and quality of education through various programmes, such as the Faculty Improvement Programme, which includes the award of Teacher Fellowships to college teachers to improve their professional competence. Most of these programmes that the U. G. C. has initiated have been spelt out in the *"Policy Frame"* for the development of Higher Education in India, published by the UGC in 1978. The reforms outlined in this document are aimed at transforming the existing educational system into a new system suited to our needs and aspirations involving a major socio-economic transformation. In this transformation, the university system itself has to play a leading role. But as the 'Policy Frame' document of the UGC rightly states:

> "no educational transformation can be brought about in a vacuum because education is a sub-system of the society as a whole and because the social and educational structure support and strengthen one another. Ours is a dual society in which economic and political power is mainly concentrated in the hands of a small class at the top. This reflects itself in a dual educational system in which the access to the best educational institutions at all stages is mostly limited to the same top class. It is this dual educational system which strengthens and perpetuates our dual society. If this vicious circle is to be broken, action on the educational front alone will not be enough and will not succeed. What we need is a radical simultaneous and complementary action, for educational as well as social transformation."

Under the sponsorship of the UGC, many important programmes have already been undertaken for the implementation of these guidelines. Status reports in respect of different disciplines in various universities have been prepared after due survey. Restructuring and diversification of courses, based on the recommendations of seminars and workshops involving fairly large sections of the academic community, has already begun. Short courses for training of teachers to teach these syllabuses, and introducing them to new developments in their fields of knowledge are being held in different places. Correspondence courses which are already being conducted by 22 universities, with an enrolment of 1,15,000 at present, are proposed to be reviewed. For Adult and Continuing Education, the UGC has supported 8790 centres in about 700 colleges, and 68 units in universities. The major factors which dislocate the proper functioning of the universities are being examined, in respect of central universities in the first instance. Many universities have already introduced the Semester System, and are undertaking measures for examination reform such as continuous sessional evaluation as a supplement to the final examination.

Many of these programmes are supported by the Association of Indian Universities, which provides a forum for Vice-Chancellors and senior academics to deliberate on important academic issues and common problems, and itself undertakes such programmes as would help to improve standards of instruction, examination and and research, growth and propagation of knowledge. The Association also acts as a liaison between the universities, the Central and State Governments and the U. G. C. in the field of higher education.

Our universities are also trying to keep pace with the explosion of knowledge and rapid advances in science and technology. Advanced studies and research in the newly emerging areas of knowledge, such as Environmental Studies, Oceanography, Space Technology, are being carried out in some of our universities and research organisations, with a view to applying this knowledge to national, social and economic development. We have developed high level expertise in many fields, which is in growing demand in many countries of the Third World, and even in some developed countries. We are exporting both technical and educational expertise to these countries in an increasing measure.

Some of the developed countries are now using electronic devices such as telecommunications, machine intelligence and computer assisted instruction, which claim to make the process of teaching and self-instruction faster. We are not yet in a position to afford the use of these contemporary technologies on any large scale. I do not deny their usefulness in certain areas of activity. But I am of the opinion that while they may serve as effective teaching and learning aids, they have their limitations. They can not be a substitute for the teacher.

In the limited time at my disposal I have tried to outline our goals of university education, and some of the steps that we have been taking to achieve them. Because of certain unavoidable circumstances and socio-economic problems, our pace in this direction has been rather slow. But ever since Independence, we have been conscious of the important role that universities have to play in national development, which was clearly spelt out in the following words, which I would like to quote from the Report of the University Education Commission of 1948, headed by Dr Radhakrishnan:

> "He indeed must be blind who does not see that, mighty as are the political changes, far deeper are the fundamental questions which will be decided by what happens in the universities. Everything is being brought to the test of reason, venerable theologies, ancient political institutions, time-honoured social arrangements, a thousand things which a generation ago looked as fixed as the hills. If India is to confront the confusion of our time, she must turn for guidance, not to those who are lost in the mere exigencies of the passing hour, but to her men of letters, and men of science, to her poets and artist, to her discoverors and inventors. These intellectual pioneers of civilisntion are to be found and trained in the universities, which are the sanctuaries of the inner life of the nation."
>
> (Chapter II,I.)

I shall now conclude with a line from Rig Veda:

आ नो भद्राः क्रतवो यन्तु विश्वतः (I-89-i)

(Let noble thoughts come to us from all directions.)

UNIVERSITY NEWS

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Indian University Today

Excerpts from the convocation address delivered by Prof. A.B. Lal, former Vice-Chancellor of Allahabad & Rajasthan Universities at Gorakhpur University.

Convocation

"In the past I had the privilege of getting some first hand experience of almost every aspect of University education and administration and some experience of the working of the University Grants Commission as well as of a State Grants Commission. During the last thirty years the problems of educational institutions in general and of Universities in particular, have increased in number and complexity. There are the problems of over-crowding, of inadequate finance, of indiscipline, of falling academic standards, of the validity of examinations and examination reform and a hundred other problems. To my mind the main function of a University is to maintain academic standard and to produce men and women of integrated personalities—the rest is ancillary. We have to acknowledge that in point of quantity education has expanded manifold, but in point of quality it has declined in a deplorable manner. True that we have set up a number of prestigious Research institutions, and in the field of Science, Technology and certain areas of Social and humanistic studies our achievements have been spectacular, but these are only islands of excellence. Whereas the general level remains disappointingly poor, any random sample taken from the Universities of U.P., Bihar, Rajasthan or Madhya Pradesh will demonstrate this. The majority of our students are far from proficient even in the use of languages even of Hindi. We should be grateful to the U.G.C. which has given us buildings and libraries and scholarship and fellowships for research. This has certainly helped the growth of research but it has not raised the general standards. All kinds of reforms have been sponsored but they seem to have failed. Government and the U.G.C. have been advocating restrictions on the admission of students to Universities but the U.G.C. has not been able to check the growth of number in Universities nor even to prevent new Universities or Colleges from coming into existence, and State Governments have themselves often "advised" Universities to admit more students. Examination reforms like the grading system or internal assessment seem to have failed and have been given up in most places. Even though governments have granted liberal scales of pay and increased grants to Universities and colleges, the present inflationary situation keeps our educational institutions in a state of perpetual crisis. At the same time non-viable colleges with fifty or sixty students only are all the time coming into existence because of political or personal pressures.

Universities are being charged by governments and politicians and irresponsible critics with having failed in their duty. Some of the charges are that Universities teach indiscipline rather than discipline, that their syllabi are old and irrelevant, that teaching work is neglected, that their graduates are so deficient in knowledge as to be virtually unemployable, that the Universities are only increasing educated unemployment, that they do not introduce courses which will be relevant to the needs of society today. Many of these charges are unfair and should be stoutly refuted. Universities cannot create jobs or solve the problem of unemployment or check the growth of population. It is for society and government to frame effective policies in this regard. It is for our planners to make projections about jobs and job requirements and then tell universities how many have to be trained for what jobs and what new fields of study will become relevant in the next decade. It is for the government to help the Universities restrict admission and to take effective action if a "law and order situation" arises on this account. It is for the government to provide adequate funds. Above all, it is for political parties to help in freeing University campuses from political infiltration. It is not the fault of the Universities but what is called the "compulsions of democracy" which may be held responsible for most of these evils. There is pressure on the Universities from the top and from below to go on increasing their enrolment, whereas they should be protected against the pressure. Admission should be strictly on merit. If any backlogs or deficiencies due to historical or social circumstances have to be made up, they should be made up in special institutions set up by governments for this purpose, before the University stage.

But this again is not to say that Universities are entirely blameless. The failure of Universities to keep abreast of developments in knowledge, their failure to revise their syllabi because of inertia, their tendency to import into the campus the methods and manners and norms of the market place and the trade union (instead of carrying their civilizing influence to the market place) their readings to succumb to political allurements and to surrender their true autonomy for temporary personal gain, their failure in a few cases to practise scholarly detachment from considerations of caste and creed and religion and their deviation in certain cases from the path of

(*Contd. on page 588*)

Towards an Open Learning System

The Government of Andhra Pradesh constituted in June, 1982 a committee consisting of Dr. G. Ram Reddy, Vice-Chancellor, Osmania University (Chairman), Prof. M.R. Apparow, Former Vice-Chancellor, Andhra University, Professor B. Sarveswar Rao, Former Vice-Chancellor, Nagarjuna University, Prof. B. Ramachandra Rao, Former Vice-Chairman, University Grants Commission, Shri M. Chandramouli Reddy, Secretary, Department of Education, Govt. of Andhra Pradesh (Members) and Shri V. Ramachandran, Director of Higher Education, Govt. of Andhra Pradesh as Member-Convener. The Committee submitted its report in August. The university was inaugurated by President Zail Singh on August 26, 1982 at Nagarjunasagar in Andhra Pradesh.

Excerpts from the report of the above committee on the establishment of an Open University in Andhra Pradesh follow :

- We recommend the establishment of an Open University in the State as an autonomous organisation by an Act of Legislature.

- The main objectives of the Open University shall be : (a) To provide educational opportunities to those students who could not be accommodated in the institutions of higher learning due to impoverished socio-economic backgrounds and other limitations; To expand educational opportunities to those in employment for upgrading their qualifications, skills and competence; for women, in particular housewives; and for all other adults who wish to acquire knowledge and skills in various fields;

  The underlying objective being to realise equality of educational opportunities for higher education for a large segment of the population.

  This goal may be realised through the print medium (correspondence courses), contact programmes through study centres and mass media.

  (b) The most important feature of this scheme will be flexibility with regard to eligibility for enrolment, age of entry, choice of courses, methods of the learning, conduct of examinations and operation of the programmes.

Dr. G. Ram Reddy

  (c) In the field of higher learning the programmes of this university will be complementary to the programmes of the existing universities in the State. It shall have to maintain the highest standards on par with the best universities in the country.

  (d) It shall be the endeavour of the university to to promote integration within the State through its policies and programmes.

  (e) In addition to offering degree courses, the university shall endeavour to offer non-degree certificate courses for the benefit of working population in various fields and for the benefit of those who wish to enrich their lives by studying subjects of cultural and aesthetic values.

  (f) To make provision for research and for the advancement and dissemination of knowledge.

- In view of the objectives of the university, it may be exempted from the operation of Presidential order relating to admissions to various courses of the university in Andhra Pradesh. Its graduates will have to be made eligible for admission for further studies in any university in the State without reference to the Presidential order......

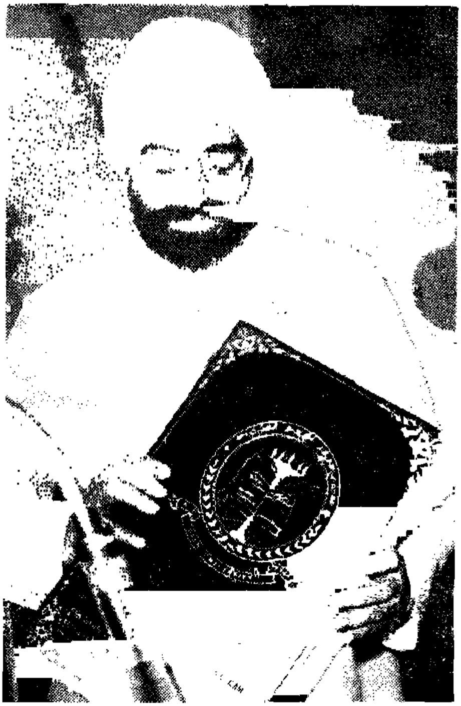
- The Committee recommends a rationalised structure of governance for the Open University, as its functions, requirements, and operational procedures are different from those of conventional universities. Therefore, it is recommended that the following pattern be adopted for the university.

  (a) There shall be an Executive Council which shall be the executive authority of the university performing the similar powers and functions which the Syndicate of the conventional universities perform.

  (b) There shall be a Planning Board which will formulate and approve all academic policies and programmes relating to the courses of the university......

- The academic programmes of the university may be organised through the set-up of schools. We recommend the establishment of schools for each major area of study such as School of Arts and Humanities, School of Languages, School of Social Sciences, School of Commerce, School of Education and Educational Technology, School of Sciences, School of Applied Sciences and Technology, School of Technology, School of Law, etc. and each School shall be headed by a Dean.

- The committee is of the view that for the successful working of the Open University's academic programmes, establishment of study centres with adequate library facilities in the districts is essential. We attach utmost importance to the efficient organisation and functioning of the study centres. In order to be accessible to the students we recommend that the Open University may establish study centres depending upon the demand and number of students. Each study centre will have a coordinator and part-time staff. The study centres will be under the direct supervision and control of the Director of Study Centres.
- One important feature of the Open University will be that its programmes will be organised by a core full-time staff and a large number of Part-time staff drawn from various existing institutions. There has to be good coordination between the Open University and the conventional universities and other institutions of higher learning in the State. The latter will have to permit their staff to uudertake assignments given by the Open University......
- The committee feels that courses to be designed should not be left to one individual teacher but to a team consisting of subject specialists and the technical people concerned with broadcasting and other media.
- In our view one special feature of the Open University is that there will be no rigidities with regard to choice of combination of courses as one finds in the conventional institutions. The students should choose more freely from different areas of study within the framework of the regulations in the degree or certificate courses.
- The committee recommends that the courses to be provided at the Open University should consist of a set of broad-based foundation courses, core programmes and applied courses in the selected areas of study. In addition, the university will have to run an entry course (introductory course) for those students who do not have the formal requisite qualification for the first degree.
- The proposed Open University will take over the correspondence courses at present run by the universities in the State. The committee, therefore, recommends that the Government may take necessary steps for the transfer of these courses to the university.
- As mentioned in chapter eight, and keeping in view the special nature, objectives and functions of open university, the committee strongly feel that adequate financial provision should be made by the Government for the open university. A sum of Rs. 237 lakhs towards recurring and non-recurring expenditure during the first three years may be provided.
- In order to develop the university to a full-fledged centre of higher learning the government will have to continue to provide financial support to the university. For this the committee strongly recommends that the government should give (a) suitable and adequate foundation grant (b) annual block grant should be revised from time to time to meet the administrative and other expenditure. We would like to point out that unlike the conventional universities, the open university would be, in several respects, financially self-supporting and not much of a burden on the State.



President Zail Singh at the inauguration of the Open University at Nagarjunasagar

New courses proposed at Ranchi University

At a meeting at Raj Bhavan at Patna under the Presidentship of Governor Dr. A.R. Kidwai, Chancellor of the Universities in Bihar, several new programmes of development of the Ranchi University were recently approved.

Top priority was given to the teaching of Library Science course to be started from the current session in the existing Central Library building of the university. To begin with, teaching will be for Certificate and Diploma courses.

Commencing postgraduate courses in Home Science in the current session in the Ranchi Women's College was also approved.

An Institute of Sociology, Social and Labour Welfare and Community Development with the cooperation of the Xavier Institute, Ranchi, would be set up. A college of athletics, sports and physical education is proposed to be started from the current session at Morabadi campus.

A College of Fine Arts, Commercial Arts and Industrial Design is also expected to be started functioning soon.

The Institute of Tribal Arts, Crafts and Culture and Music was decided to be named as the College of Music, Dance and Drama and a comprehensive scheme was to be prepared for this purpose.

Other schemes included opening of Business Management course, teaching of Statistics, Journalism, Bio-Chemistry, Linguistics and Tribal Languages, Architecture, Planning and Urban, Development, Environmental Science, etc.

A postgraduate centre is proposed to be opened at Hazari Bagh with facilities for study of Physics, Chemistry, Botany, Zoology and Commerce and at Dhanbad for Economics, Mathematics, Statistics, Political Science and Commerce.

It was also decided to prepare plans for starting a law college and a postgraduate course in law with emphasis on company law.

Development plan for Cochin Varsity

The University of Cochin has constituted a seven member expert committee for formulating a plan for the development of the University as the Science and Technology University of the State. The Committee consists of Dr. M.M. Chakrabarty, Vice-Chancellor, Jadavpur University (Chairman), Dr. P.N. Ganapathy, Emeritus Professor, Andhra University College of Science and Technology, Dr. P.K. Iyyengar, Director, Physics & Metallurgy Group, BARC, Dr. L.S. Chandrakant, former Educational Adviser (Tech) to the Government of India, Dr. P.V. Indiresan, Director I.I.T., Madras, Shri P.K. Umasankar, Commissioner for General Education, Government of Kerala and Professor T.B.K. Menon, Pro-Vice-Chancellor (Convener).

The terms of reference of the Committee are to prepare a plan and strategy for the development of the University consistent with the declared objectives of the University set out in the preamble of the Cochin University Act and to make recommendations on the academic areas in which the University might appropriately concentrate its attention, the type of courses the University should organise and its order of priority, the administrative structure appropriate to the strategy of action proposed, how the objectives of the University should be related to the overall needs of the State in terms of trained manpower in the field of Applied Science and Technology, measures required for transforming the University into a full-fledged centre of higher education and research with particular emphasis on Science and Technology and to indicate possible sources of assistance for implementing the plan of action proposed.

Silver Jubilee of IIT Bombay

The Indian Institute of Technology, Bombay, is celebrating its silver jubilee this year. A number of academic programmes

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BITS students evolve code of conduct for student elections

The students of the Birla Institute of Technology & Science have evolved campaigning norms for the election of Presidential candidates to the students union. The norms include some 'dos' and 'donts' and size of posters, etc. Some of the details are as follows.

No printed matter is to be used for campaigning except for printed badges. These badges also can be a maximum of *three* types only.

There can be painting of roads or walls, no music or entertainment programmes, no refreshment stalls and no anti-campaigning of any sort or any slandering of character. No animals are to be used.

There shall be a meeting to address the I year students for which time and venue is to be decided later.

There can be one cloth banner of 3m. by 1m. size that can be put anywhere in the campus except on the Institute Building.

Only a D-sheet size poster can be used and displayed in every mess. An S-sheet size poster can be used in each Bhavan over the control room. On the final day there can be a 4 D-sheet size poster that can be displayed at a place to be decided.

Only bicycles are allowed as means of transportation. Only two processions can be organised, one on the final day and one more at any time during specified hours. Dates for the campaigning have aslo been agreed upon.

have been scheduled to mark the occasion. A list of the programmes follows.

Workshop on Holographic Interferometry and its Applications (8-9 Sept. 82); Seminar on Chemistry Teaching at Secondary and Tertiary Levels (9-10 Sept. 82); Week-end Course on Microprocessor Applications (11-12 Sept. 82); Workshop on Applications of Electron Microscopy (17-18 Sept. 82); Workshop on Geo-Modelling (17-20 Sept. 82); Workshop on Offshore Structures (22-27 Sept. 82), Week-end Course on Maintenance Management (2-3 Oct. 82); Week-end Course on Techniques of Topographic Analysis (9-10 Oct. 82); Week-end Course on Bearings—Lubrication, Performance & Maintenance (16-17 Oct. 82); Seminar on Current Trends in Physics (20-22 Oct. 82); *Short-Term Course on Aircraft* Structural Design (29 Oct.-4 Nov. 82); Week-end Course on Management Systems for Materials Administration (6-7 Nov. 82); Short Term Course on Application of Remote Sensing to Geo Tech. Engg. (8-12 Nov. 82); Pilot Project on Pile Foundations Sponsored by Indian Society for Technical Education & Indian. Geotechnical Society (9-12 Nov. 82); Short Term *Course on Powder Metallurgy* (17-27 Nov. 82); Week-end Course on Metal Finishing (29-30 Nov. 82); Symposium on Lubricants Additives Waxes & Petroleum Speciality Products (3-4 Dec. 82); Symposium on Advances in Mechanics Symposium on Approximation & Optimization (6-8 Dec. 82); Workshop on Fuel Conservation in Combustion Devices (10-11 Dec. 82); Seminar on Recent Advances in Material Research (20-22 Dec. 82); Short Term Course on Techniques in Geomorphic Applications (27-31 Dec. 82); Week-end Course on Microprocessors in Instrumentation & Control (1-2 Jan. 83); Symposium on Applied Thermodynamics (5-6 Jan. 83); Indo-French Workshop on Urban Transport Engg. (11-14 Jan. 83); Seminar on International Co-operation for Higher Education in Science and Technology (20-22 Jan. 83); Workshop on Rolling Mills and Roll Pass Design (24-25 Jan. 83); Seminar on Perspectives on India's Development (27-29 Jan. 83); Indo-French Workshop on Environmental Engg. (31 Jan.- 3 Feb. 83); Seminar on Environmental Management (7-11 Feb. 83); Seminar on Electronics & Communications in the Eighties (14-16 Feb. 83); Week-end Course on Evaluation of Quality of Thin Films (19-20 Feb. 83); Seminar on Chemistry Interfaces & Frontiers (22-24 Feb. 83); Week-end Course on Membrane Processes (26-27 Feb. 83); National Conference *on Application* of Remote Sensing to Natural Resources Environment, Landuse and Problems relating to Training and Education (2-5 Mar. 83); Pilot Project on Pile Foundations—Indian Society for Technical Education and Indian *Geotechnical Society* Workshop-III (7-12 Mar. 83); Workshop on Research Need in Mineral Processing Chemical Metallurgy (15-16 Mar. 83); ARDB Symposium *on Fracture* Mechanics, Testing Analysis and Design (21-25 Mar. 83).

Campus News

Third All India Seminar on Ichthyology

The Third All India Seminar on Ichthyology sponsored by the University Grants Commission, was held under the auspices of Department of Zoology, Gauhati University from 26th to 29th July 1982.

A large number of Fishery Scientists and Researchers from all over India participated in the Seminar. There were one inaugural, three technical and one summary session besides a panel discussion.

The Seminar was inaugurated by Dr. P.S.B.R. James, Assistant Director General (Fisheries) ICAR, New Delhi with Dr. V.G. Jhingran as Chief Guest and Dr. A.G.K. Menon as a keynote speaker. The inaugural session was presided over by Dr. J.M. Chaudhury, Vice-Chancellor, Gauhati University.

In the first Technical session on Fisheries twelve research papers were presented. and in the 2nd technical session (Fish Ecology) sixteen selected Research papers were presented.

Dr. D.P. Motiramani, Vice-Chancellor, Assam Agricultural University presided over the Fishery Biology (3rd Technical) session *on 28th July. As many* as 14 Research papers were presented in this session by the workers from different parts of the country.

After thorough deliberations in the three technical sessions the scientists and researchers met separately (as per technical sections) in a Panel Discussion to formulate recommendations in each group. All such recommendations prepared were placed in the Summary Session on 29th July with Dr. V.G. Jhingran, Fishery Scientist, in the Chair.

The highlight of the Seminar was *that unlike the previous* Ichthyological Seminar this Seminar initiated the necessity to co-ordinate the basic and applied research in solving the Ichthyological problems. This Seminar also recommended that future Ichthyological Seminar should be held on regional basis at regular intervals. Another important outcome of the Seminar was the need for urgent development of the water resources, particularly the beels of the North Eastern India, could be focussed at National level for early imple*mentations of the recommenda*tions made. This Seminar also helped to exchange the views on various aspects of Ichthyology notably Taxonomy, Nutrition, Reproductive Physiology, Bio-Chemistry, Fish-Pathology, Genetics, Endocrinology and Limnology among over 100 Fishery

Scientists and Researchers from all over India to understand the present status of ichthyology of the country in general and the North Eastern Region in particular.

All the formulations and recommendations made in the Seminar are proposed to be sent to different organisations for implementation.

Plans of expansion of Bharathidasan University

The Bharathidasan University, Tiruchirapalli, proposes to establish 12 schools during the coming 10 years. The proposed schools are of Administration and Management, Energy, Architecture and Graphics, Medical Sciences, Energy and Technology, Geophysical Sciences, Life Sciences, Social Sciences, Languages, Education, Sports and Physical Education and Performing Arts.

The Vice-Chancellor of the University, Mr. Manisundaram, stated recently that priorities have been decided upon for the next three years and the first school that would start functioning immediately this year would be the School of Administration and Management which is expected to be supported by industries especially the BHEL at Tiruchi and the Maruti Udyog, Delhi.

The School of Energy is likely to be set up in early 1983 while the School of Social Sciences is likely to be set up in November 1983. The School of Performing Arts and the School of Geophysical Sciences is expected to be started in March and September, 1984 respectively.

The university also proposes to make project work compulsory even in degree level programmes.

Job-oriented education at Ahmedabad

The Bhavan's R.A. College of Science at Ahmedabad will start three job-oriented courses for Science graduates in cooperation with the Director of Employment and Training, Gujarat.

This is the first educational institute which has extended its cooperation to the state Government in its drive to provide employment-oriented courses and training for the purpose.

The three courses to be introduced by the college from September 1, are industrial chemical testing and pollution control industrial electronics and electrochemistry and clinical pathology and forensic and environmental testing.

The courses which are of six months duration, financed by the state Government, will be run free. The state Government has sanctioned a grant of Rs. 2 lakhs to the college for the first two batches of students.

In each batch, 20 students would be admitted after written and oral tests. A science graduate with at least second class marks is eligible to appear for the test. The state technical examination board will conduct the examination for the award of diplomas to these students.

Superheavy elements in nature

Dr. A.P. Sharma, Professor in Physics Department of Kurukshetra University, in collaboration with USSR scientists, has proved, for the first time in the world, it is claimed, the experimental evidence of the existence of the Superheavy elements in Nature during his research studies on Meteoritic detectors.

Prof. Sharma added that though four events of superheavy elements of atomic charge ranging from 112 to 116 have been discovered by his research group in collaboration with the Soviet scientists, more research work is still needed in this direction in future.

Prof. Sharma has also developed a Glass Detector Technique

Shri Buta Singh has been appointed as Union Minister of State for Supplies and Sports.

This is the first time that a separate Minister has been appointed for sports at the Centre. Hitherto sports was part of the Ministry of Education and was a part of the overall charge of the Education Minister.

Shri Buta Singh is also the Chairman of the Asian Games Special Organising Committee.

University News wishes Shri Buta Singh all success in his new charge.

RELEASING IN OCTOBER, 1982

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Natural & Applied Sciences 1979-80.

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NEW DELHI-110002.

for recording the tracks of fission fragments and heavy ions more accurately, and his newly developed Glass Detectors are also in use in the Nuclear Reaction Laboratories abroad, it is stated

Statutory grants to GU, DU raised

The Assam Government has decided to raise the annual statutory grants to Gauhati and Dibrugarh Universities in the State, it is reported

The statutory annual grant was raised from Rs 40 lakhs to Rs 100 lakhs in case of Gauhati University and from Rs 40 lakhs to Rs 75 lakhs for Dibrugarh University

The decision was taken after due consideration of the report of the committee set up in 1980 to examine the financial conditions of the universities It may be added that the Acts governing the Gauhati and Dibrugarh Universities are one of the few in the country which have a provision for payment of a fixed amount of annual grant by the State Government

National seminar on environmental law

The Department of Law of the University of Cochin proposes to organise a three-day national seminar on Environmental Law from 16th to 18th of December, 1982 The seminar is expected to be attended by experts in various disciplines like law, science, technology, economics, environment, industries and administration

Preservation of the national environment can be achieved through cooperation and collaboration of experts in the different fields and disciplines Law and technology have to go hand in hand The seminar is expected to explore how best industrialisation can be achieved without upsetting the ecological balance with the aid of science and technology and under system of legal control

Indian
school of
Mines

DHANBAD-826004

No 615208/82 Dated · 27th August, 1982

M.PHIL PROGRAMME

1 1 Applications are invited for admission to the one year M Phil programme of Indian School of Mines (which is deemed to be a University under the U G C Act) in the disciplines of Applied Mathematics, Applied Chemistry, Applied Physics, Applied Geophysics and Applied Geology

1 2 Six M Phil seats are available in each disciplines, except Applied Geology in which eight seats are available

1 3 20% of the seats are reserved for SC/ST candidates if available, Otherwise, they will be thrown open

2 1 **Eligibility qualifications** · Postgraduate degree in Mathematics (or Statistics), Chemistry, Physics, Geophysics/Applied Geophysics, or Geology/Applied Geology, as the case may be, with 60% marks—relaxable to 55% for SC/ST candidates and sponsored candidates, and also for those with field/research experience or with special aptitude for research

2 2 Candidates shall have to appear at a written test (of about two-hour duration) and Viva Voce, at the School on the notified date No travelling allowance shall be paid for appearing at the test

2 3 Preference will be given to sponsored candidates (Sponsorship in this context means retention of lien on post and grant of suitable allowance) Applications of sponsored candidates should carry suitable endorsement to this effect by the employer

3 1 **Scholarship:** Unsponsored candidates are eligible for scholarship of Rs 600/- p m for a period not exceeding 12 months provided that they have obtained at least 60% marks (55% for SC/ST candidates) in the qualifying examination, i e, for the eligibility qualification

3 2 Candidates who qualify at the M Phil programme (before they have reached the age of 30 years) whith grade E or A in the dissertation, are likely to be awarded research fellowship to work for the Ph D degree of the School in the relevant discipline

3 3 M Phil classes are expected to start on 10th Jan, 83 Students of Applied Geology shall be required to report five weeks earlier than the date aforesaid for undergoing field training

4 **Procedure of applying** M Phil application forms can be obtained by sending a crossed postal order for a sum of Rupees Five only, made payable to the Registrar, Indian School of Mines Dhanbad-826004, along with a self-addressed unstamped envelope of size 23 cm x 10 cm

LAST DATE FOR RECEIPT OF COMPLETED APPLICATION: Oct. 9, 1982

S P Varma
REGISTRAR

Seminar on stochastic models

The Department of Statistics of the Karnatak University, Dharwad, proposes to organise a University Grants Commission sponsored 6-day seminar on 'Stochastic Models' from 4th to 9th December, 1982 Models occurring in various fields are proposed to be discussed by experts The fields identified for discussion are Operations Research, Industrial Engineering, Reliability, Bio-statistics, Population Studies and Econometrics

Those interested may send their bio-data in the prescribed application form to Prof B R Bhat, Director of the Seminar

Norms for entry into BE at Bangalore

The Academic Council of the Bangalore University, it is reported, has taken a decision to prescribe a minimum period of five years of study in Karnataka for students to be eligible for admission to a Bachelor of Engineering degree course of the university

TN government proposes collective fine on students

The Education Minister of Tamil Nadu stated recently at Madras that the Government of Tamil Nadu was considering a proposal of imposing a collective fine on all the students to make good the damage caused as a result of violence which erupted after union elections in one of the colleges in Tamil Nadu

Gifts for Tamil University museum

The Tamil University at Thanjavur has received a gift of rare collection of antiques including a Veena, ironware and stone implements coloured beads, Nigerian earthenware, handicrafts from rural Vietnam, Burma and Japan, two Japanese paintings, pottery pieces, etc from a former Professor of Delhi University These gifts are on display at the University Department of Manuscriptology

New exam rules for Calcutta students

The Calcutta University Council at a recent meeting decided that from the next academic session private candidates in M A and M Com examinations would be allowed to appear only in those subjects in which they had studied in their undergraduate course Hitherto a candidate who had passed the B A and B Com with English and Bengali could appear in the M A and M Com examination in any subject as a private candidate

Pollution Biology

The Department of Zoology, University of Poona, will hold an All India three week Institute from 29th Nov to 19th Dec 1982 on "Environment and Pollution Biology" The institute is sponsored by the University Grants Commission All those interested in joining as Faculty members or participants are requested to contact Professor (Dr) G T Tonapi, Head, Department of Zoology, University of Poona, Poona 411007, with brief personal profiles, states a release from the Zoology department of the university

Sri Sathya Sai college

Sri Sathya Sai College of Arts at Whitefield, Bangalore, is now affiliated to Sri Sathya Sai Centre of higher learning at Anantapur in Andhra Pradesh Its erst while affiliation with the University of Bangalore ceases

McNamara Fellowships

The World Bank has announced a limited number of fellowships being available under the newly established the Robert S McNamara Fellowships The fellowships will be awarded for 12-month periods, beginning in the 1983 academic year, for full-time study or research at the post-graduate level in fields related to development The innovative or imaginative character of the work to be undertaken will be a major factor in selection The program is not intended to support work leading to an advanced degree Candidates must be nationals of a Bank member country, normally not more than 35 years of age and holders of a master's degree or the equivalent and the work must be carried out in a country other than the candidate's own Each fellowship will include a stipend to cover subsistence and accommodation, travel, and an allowance for books and cost of research Applications should reach the Bank's Economic Development Institute by December 1, 1982

Persons interested in further information about the requirements and criteria of the fellowship program or about how to apply may write to J Price Gittinger, Coordinator, McNamara Fellowships Program, Economic Development Institute World Bank, 1818 H Street N W , Washington, D C 20433 U S A

News from Agril. Varsities

UAS hosts wheat research workers workshop

A 4-day All-India Wheat Research Workers Workshop was organised by the University of Agricultural Sciences, Bangalore recently Inaugurating the workshop, Dr N G Perur, Vice-Chancellor of the University said that scientists should develop suitable varieties and cultivation practices to ensure stabilised yields since a major portion of the area under wheat cultivation was still exposed to the vagaries of the monsoon

Dr Norman Borlaugh, Noble Laureate addressing the workers emphasised the need for producing more food by drawing attention to the population growth and existing shortfalls in food production He wanted Indian Agricultural scientists not to be complacent about the prevailing situation

Dr G V K Rao former member of the Planning Commission, said it was easier and faster to grow crops in certain cases rather than import food like edible oils

JNKVV sanctioned six new ICAR schemes

The Indian Council of Agricultural Research New Delhi has recently sanctioned the following six new schemes/projects to Jawaharlal Nehru Krishi Vishwa Vidyalaya Jabalpur

1 All India coordinated research project for the rapid improvement of agricultural technology directed at socio economic uplift of scheduled castes and other backward communities
2 An ad hoc scheme on Constraints analysis of production of major pulses and oilseeds in the selected district of M P (Khargone)
3 Operational research project on rainfed farming in medium rainfall area Guna District Guna
4 Operational research project on bund farming in medium rainfall area Sidhi (district-Didhi)
5 A sub-centre of the All India coordinated research project on rodent control at Jabalpur
6 Studies on the efficacy of various drugs for the treatment and immunophylaxis of Bovine tropical theileriasis caused by Theilaria

New gram

A new variety of gram named Vikas has been developed and released for cultivation by the MPAU The new variety has been developed at the Central Campus of the Mahatma Phule Agricultural University Rahuri through hybridization between Khanapur-6 x AF-7-10 It is bushy in growth habit and its foliage turns bronze towards maturity Pods at maturity show a prominent brown spot It matures in 105 days and under rainfed situations yields 11-12 quintals/ha It has outyielded the most popular variety of Maharashtra Chafa by a margin of 20-25% Vikas has medium bold grains with golden yellow seed colour It is less susceptible to fusarium wilt and stored grain pest Callosobruchus maculatus It has good chana making quality and better nutritional composition as compared to Chafa It gives good response to better management conditions i e application of Rhizobium culture fertilizers irrigation etc Besides it is more stable in performance under adverse situations obtaining in dryland agriculture

ICAR grant for quarters at MPAU

The Indian Council of Agricultural Research New Delhi has sanctioned Rs 35 lakhs for construction of residential quarters for the staff of the MPAU Construction of 36 quarters has already commenced while construction work on another twelve structures commenced recently

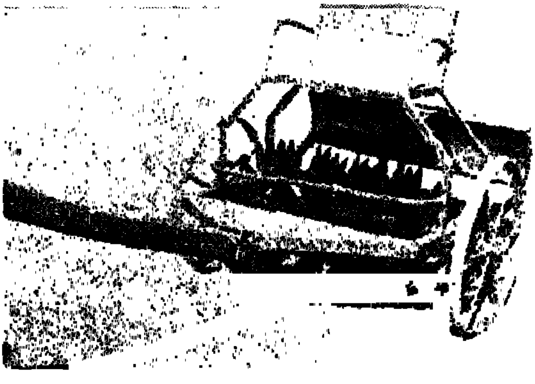
Konkan Krishi Vidyapeeth develops bullock drawn paddy puddler

Rice is the major food grain crop of the Konkan region Puddling is one of the important operations of transplanted rice It is generally performed with the help of the traditional wooden plough The wooden plough does not produce churning of the soil requires more time per unit area and gives low quality puddle

Considering the above disadvantages the Konkan Krishi Vidyapeeth has designed and developed a bullock drawn rotary puddler It has an effective width of 60 cms It requires one pair of bullocks It is provided with a plank to level the puddle so as to avoid separate operation of planking It is also provided with a seat for the operator The implement is to be worked crosswise In the second operation the levelling plank is to be operated

It is claimed that the puddling operation is three times faster than that of a wooden plough and it gives a uniform and good quality puddle Besides it helps to eliminate planing operation and calculations show that it helps to reduce the cost of puddling by about Rs 200 per hectare

The University has initiated production of the puddler and the supply will be started from kharif 1982 at Rs 850 per puddler



Design of the bullock-drawm rotary puddler developed by Konkan Krishi Vidyapeeth

Plant gene marker cloned

Australian scientists have cloned a gene which can signal the successful insertion of other genes into plant cells

The advance, made by researchers in the Commonwealth Scientific and Industrial Research Organization's (CSIRO) Division of Plant Industry in Canberra, means the cloned gene can act as a marker by making cells grow faster in tissue culture, the method by which all genetically modified plants will be grown from single "engineered" plant cells

Dr Liz Dennis, a member of the research team, said the development of a method of identifying genetically transformed cells was regarded as an important step towards the new age of plant improvement

The gene cloned by the CSIRO team produces an enzyme called alcohol dehydrogenase (ADH) which helps maize to survive in waterlogged soils. The gene is activated by low oxygen levels and switches off when oxygen levels are normal It had attracted the interest of molecular biologists because it belongs to a class of genes that are readily switchable from outside the cell

Dr Dennis said this characteristic could be very convenient in tissue culture, which involves low oxygen levels that inhibit the growth and division of cells lacking the gene for making ADH

"If we were to insert our gene into a cell which previously lacked it, we would be able to tell if it had inserted into the plant's DNA because it would make the cell grow and divide faster under oxygen-limited conditions," Dr Dennis said.

"We foresee that the ADH gene will be linked with other genes and introduced into cells If they respond with faster growth, we can assume that the gene or genes which went in with the marker gene are also in place and functioning as part of the plant's DNA."

Alternative methods of determining the success of gene insertion involved searching for a new gene's protein among many other proteins in the cell, or growing plants to a stage where new characteristics conferred by a gene could be identified

"If our system works, it will make it much easier to determine success," Dr Dennis said. "Cells that have the new genes will grow faster than the ones which missed out." [*Courtesy*: Australian High Commission Agricultural Newsletter.]

Personal

1. **Dr. Balbir Singh, Head of the Department of Political Science, University of Jammu, has been nominated by the University Grants Commission to visit Bulgaria under the Indo-Bulgarian Exchange Programme.**
2. **Mr. K.K. Gautam, Lecturer in the Department of English, Kurukshetra University, has been selected for the British Council Travel and Training Award for 1982-83 to undertake advanced courses in Linguistics and English Language Teaching at the University of Leeds.**

Indian University Today

(*Contd. from Page 579*)

single-minded commitment to academic work and the moral and mental welfare of their students—all these factors have detracted from the high esteem in which Universities were held even by the British rulers before Independence I hope you will not misunderstand me and I say with a sense of great satisfaction that in every University even today you will find teachers and students and administration who are steadfastly loyal to their noble calling and who, therefore, enjoy the affection and esteem of all concerned. But if their example had been followed by all, there would have been no possibility of governmental invasion on University autonomy or of University teacher and administration being humiliated by governmental or non-governmental agencies

Is there any remedy for the present malaise? I regret I have no solution to offer. The problems of the University are difficult to separate from the problems of society. Simplistic solutions have been offered, e g., delinking jobs from University degrees. My fear is that even if this is done, jobless students will still continue to flock to Universities for want of anything else to do The root of the matter perhaps is the present explosion of population To my mind, the rate of population growth in our country has to become negative, even though I know that there are certain dangers involved in that course Our economic planning and manpower planning have to be made more effective And our Universities should be given more autonomy and placed under the guidance of committees of academicians known for their scholarship and integrity And, although this may shock you, I feel that for some time at least, the measure of democracy in our University administration should be reduced And when normalcy has been achieved somehow sometime in the future. Universities should be run by teachers alone with government and society only keeping an eye on their working from a distance as it were. I am hoping that the day will come soon when the Universities will find it possible to discharge their proper functions and responsibilities with out any let or hindrance." ◻

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16	Research Needs in the Study of Education (Engligh) Prof Uday Shankar & Dr S P Ahluwalia	40 -
17	A Comparative Study of Teacher Effectiveness Through The Four Years Concurrent Course And the One Year Successive Course (English) Mrs Lakshmi Shankar	6-25
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RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1 Jain, Prakash Chandra On the study of topological aspects of certain distributional integral transformations. University of Indore Dr V N Bhise, Reader, Department of Applied Mathematics Shri G S Institute of Technology and Science, Indore

Physics

1 Bhandari, Prakash Kumar Investigation on the magnetic storms University of Indore Dr R.S Shrivastava, Lecturer, Department of Physics Holkar Science College, Indore and Dr P G Raman, Reader, Department of Medicine, M G M Medical College, Indore

2 Chitale, Vinayak Shridhar Some self consistent calculations for model nuclei University of Indore Dr N R. Bharatiya, Lecturer, Department of Physics, Holkar Science College, Indore

3 Dhull, Jagbir Singh Dielectric relaxation of amides from microwave absorption studies Himachal Pradesh University Dr D R. Sharma, Department of Physics, Himachal Pradesh University, Simla.

4 Metta, Kamal Kant Study of holographic diffraction gratings and the characteristics University of Indore Dr R.S Kasana, Lecturer, Department of Physics, University of Indore, Indore

5 Rajurkar, Suvarna Trimbak Mossbauer studies of some disordered magnetic systems University of Indore Dr Ajay Gupta, Lecturer, Department of Physics, University of Indore, Indore

6 Zope, Madhavi Jagdeesh. Study of amorphous semiconducting compounds Shivaji University Prof J K Zope Department of Physics, Shivaji University, Kolhapur

Chemistry

1 Anand Jit Kaur Synthesis of aryl oxides of aluminium (III) and indium (III) Himachal Pradesh. University Dr K C Malhotra Department of Chemistry, Himachal Pradesh University, Simla

2. Bambah, Pawan Kumar Organic chemistry University of Delhi Prof. A C Jain Department of Chemistry, University of Delhi, Delhi

3 Cheema, Jagir Singh Preferential solvation of ions in mixed solvents Himachal Pradesh University Dr D S Gill, Department of Chemistry Himachal Pradesh University, Simla

4 Gupta 'Suman, Organic reactions on solid matrix and polymers Himachal Pradesh University Dr C S Pandey Department of Chemistry, Himachal Pradesh University, Simla

5 Kaul Jyoti Chemically induced grafting of vinyl monomers on natural polymers Himachal Pradesh University Dr B N Misra, Department of Chemistry, Himachal Pradesh University, Simla

6. Khetarpal, Ramesh Chander A study of graft copolymerization of vinyl monomers onto gelatin and cellulose Himachal Pradesh University Dr B N Misra, Department of Chemistry, Himachal Pradesh University, Simla

7 Kulkarni Shirish Yashwant X-ray photoelectron spectral studies of amino acid complexes of transition metal ions Shivaji University Dr C K Bhaskare, Department of Chemistry, Shivaji University, Kolhapur

8 Malkiet Singh Determination of trithiocarbonates and analytical applications of mercaptan carbon disulphide reaction Himachal Pradesh University Dr B C Verma, Department of Chemistry, Himachal Pradesh University, Simla.

9 Patil, Rajendrakumar Balkrishna. Solvent extraction and atomic absorption spectroscopic analysis of food, water and soil Shivaji University Dr V M Shinde, Department of Chemistry, Shivaji University, Kolhapur

10 Sekhri, Madhu Bala Influence of dielectric constant of medium on ion association and ionic mobility Himachal Pradesh University Dr D S Gill, Department of Chemistry, Himachal Pradesh University, Simla

11 Sharma, Amar Nath. Studies on ion-solvent interactions in aceton+N, N-dimethylformamide solvent systems Himachal Pradesh University Dr D S Gill, Department of Chemistry, Himachal Pradesh University, Simla

12. Sharma, Neeraj Synthesis phenoxides of some elements of group V and VI Himachal Pradesh University Dr K C Malhotra, Department of Chemistry, Himachal Pradesh University, Simla

13 Sidhu, Harmohinder Singh Determination of some nitrogen and sulphur containing organic functional groups Himachal Pradesh University Dr B C Verma, Department of Chemistry, Himachal Pradesh University, Simla

14 Srivastava, Reeta Rani Kinetics of reaction $Cu^{2}+Cu^{\circ}$ $2Cu^{+}$ in water+acetonitrile mixtures Himachal Pradesh University Dr D.S Gill, Department of Chemistry, Himachal Pradesh University, Simla

BIOLOGICAL SCIENCES

Botany

1 Gadha, S Pistil-pollen interaction in chlorophytum University of Kerala Prof A N Namboodiri, Department of Botany, University of Kerala, Kariavattom

2 Gangadharan Pillai, K Cytogenetic studies on economically important grasses and their wild relatives University of Kerala Dr J Christopher, Department of Botany, University of Kerala Kariavattom

3 Latha P G Studies on orchids University of Kerala Prof A N Namboodiri, Department of Botany, University of Kerala, Kariavattom and Prof A Abraham Director, Tropical Botanical Garden and Research Institute Trivandrum

4 Menon, Parvati Biochemical studies on the sterility of asclepiads University of Kerala Dr A N Namboodiri, Department of Botany, University of Kerala, Kariavattom

5 Mirajkar, Pandurang Bapurao Studies in photosynthesis under conditions of stress Shivaji University Dr B A Hegde, Department of Botany, Shivaji University Kolhapur

Zoology

1 Desai, Dadasahab Babasahab Studies on the lipase activity in mice tissues in experimental uranyl nitrate intoxication Shivaji University Dr V A Sawant, Department of Zoology, Shivaji University, Kolhapur

2 Gojer, Mohan Ebenezer Studies on the adipose tissue of mice in experimental uranyl nitrate intoxication Shivaji University Dr V.A Sawant, Department of Zoology, Shivaji University, Kolhapur

3 Sudha, S Studies on some plant parasitic nematodes of Kerala University of Kerala Dr N R Prabhoo, Department of Zoology, University of Kerala, Kariavattom

Medical Sciences

1 Tiwari, Bharati Umesh Effect of Indian medicinal plants on normal and abnormal cellular growth Shivaji University Dr S K Ganeriwal, Prof, Department of Physiology, Dr. V M Medical College, Solapur

2 Vivekanand Reddy, Biyyam Effect of amniotic fluid on blood coagulation. Shivaji University, Dr S.K. Ganeriwal, Prof, Department of Physiology, Dr V M Medical College, Solapur

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Badrinarayan, N.B. Studies in stability theory of differential equations. University of Mysore.
2. Das, Mohan. Some investigations on 2-normed spaces. Banaras Hindu University.
3. Ghosh, Kisorimohan. Some problems connected with contraction type mappings. University of Calcutta.
4. Gupta, Umesh Chandra. The transient behaviour of some Markovian queues. Indian Institute of Technology, Delhi.
5. Jat, Jawahar Lal. On near-rings and near-ring modules. University of Udaipur.
6. Joshi, B.C. A study of some differentiable manifolds. Kumaun University.
7. Maitri, Vinay. Some contributions to ranking and selection procedures in reliability and paired comparison designs. Indian Institute of Technology, Delhi.
8. Nayak, Padmanv. Some theoretical investigations in Newtonian and non-Newtonian fluids. Utkal University.
9. Ramachandran, S. Studies in graph theory; Ulam's conjecture and allied conjectures. Madurai Kamaraj University.
10. Sen, Dilipkumar. Some results on semi-inner product spaces. University of Calcutta.
11. Syed Haider, Raza. Partially ordered algebraic structures. University of Delhi.

Statistics

1. Arora, Lokesh. Some aspects of sample surveys with special reference to estimation of frequency distributions in finite populations. University of Delhi.
2. Krishna Dutt. Some statistical problems connected with the estimation of prevalence and incidence of pulmonary tuberculoses. Agra University.

Operational Research

1. Rai, Pyare Mohan. Some problems in the theory of reliability. University of Delhi.

Physics

1. Acharya, Bhairun Lal. Study of lower ionosphere using radio wave absorption phenomena. University of Udaipur.
2. Agarwal, Haribabo. Studies on interionic forces in diatomic molecules of alkali halides and hydrides. Agra University.
3. Bandyopadhyay, Srilekha. Study of the three magnon bound state equation. University of Calcutta.
4. Betal, Badalkumar. Some aspects of high energy proton nucleus interaction in emulsion. University of Calcutta.
5. Bhargava, Atri. Dielectric relaxation study in liquids in microwave frequency region. Agra University.
6. Chawat, Bhagwati Lal. Study of magnetic and electric hyperfine interaction of excited nuclei. University of Udaipur.
7. Dattar, Alok Kumar. Investigations on the physics of metal semiconductor and P-n junction devices. University of Calcutta.
8. Ghosh, Bikas. Spectroscopic investigation of ligand field energy states of some first row transition metals in crystals. University of Calcutta.
9. Gopalakrishna, Saladi. V.L.F. propagation using atmospherics. Andhra University.
10. Joshi, Sakharam Govindrao. Structural, electrical and magnetic properties of mixed cobalt-manganese spinels. Nagpur University.
11. Kakani, Shyam Lal. Study of magnetic phenomena in super conductors. University of Udaipur.
12. Keshava Murthy, R.S. Theoretical studies on photoproduction of pions on neutrons with deuteron and triton targets. University of Mysore.
13. Khanna, Mina S. Instabilities in solid state plasmas. Vikram University.
14. Kharbanda, Manju, Some studies of mid latitude F-region dynamics. University of Delhi.
15. Misra, Agya Prasad. High energy solar cosmic ray intensity enhancement. Awadhesh Pratap Singh University.
16. Nayak, Ramesh Chandra. Study of some close-shell nuclei. Berhampur University.
17. Ramachandran, K. Investigations on some aspects of lattice dynamics in a few semi-conducting crystals. Madurai Kamaraj University.
18. Ramanathan, R. CP & T violation in weak interaction by introduction of phases in the weak neutral currents. University of Delhi.
19. Rani, N. Studies on phonon frequencies in metals and semi-conductors. Agra University.
20. Ray, Banani. Study of interactions of ultrasonic waves with liquid mixtures by opto-acoustic method. University of Calcutta.
21. Sarkar, Prabirbandhu. An X-ray investigation of the crystal and molecular structures of some organic compounds. University of Calcutta.
22. Sharma, Arvind Dev. Studies on energy conversion devices based on organic photovoltaic materials. Indian Institute of Technology, Delhi.
23. Sivaprakash, N.C. Molecular structure and physical properties of liquid crystals. University of Mysore.
24. Shukla, Madhu. Microhaliness and dissolution studies of coloured and uncoloured sodium chloride crystals. Jiwaji University.
25. Somashekar, R. Studies on birefringence optical textures and molecular ordering of liquid crystals. University of Mysore.
26. Veeresham, P. Thermoluminescence and optical absorption studies of colour centers in mixed alkali halide crystals. Osmania University.
27. Venkatesh, G. High pressure studies of liquid crystals. Bangalore University.
28. Venugopal Reddy, P. Electrical and elastic behaviour of some mixed ferrites. Osmania University.

Chemistry

1. Basu, Satyendranath. Studies on complex-forming behaviour of some heterodonor ligands. University of Calcutta.
2. Bebel, Dilkhush Lal. Kinetics and mechanism of the oxidation of some organic compounds (thiourea and N-substituted thioureas in particular) by vanadium (V.) University of Udaipur.
3. Bhadouria, Udaipal Singh. Potassium response studies in the soils of Harsi command area of Northern Madhya Pradesh. Jiwaji University.
4. Bhardwaj, M.C. Physico-chemical studies on the interaction of transition metal ions with α-β-unsaturated hydroxy phenones and related substances (oximes). Agra University.
5. Bijendra Singh. Metal complexes of some sulfur-nitrogen ligands. Banaras Hindu University.
6. Biswas, Prasantakumar. Studies on the metal complexes of hydrazine derivatives. University of Calcutta.
7. Chattopadhyay, Smarajitkumar. Studies on heterocyclic compounds. University of Calcutta.
8. Chaturvedi, Prakash Narayan. Studies on 1,4, trans-polysoprene. Sardar Patel University.
9. Dakshinamurty, Peri Medha. New analytical aspects of some quinones. Andhra University.
10. Das, Bichitra Nanda. Effect of surfactants in the study of reaction mechanism. Sambalpur University.
11. Dhaveji, Karipeddi. A study of the crystalline constituents of some Indian medicinal plants. Andhra University.
12. Gaggad, Harikisan Laxminarayan. Chemistry of benzoylcinnamoylmethanes. Nagpur University.
13. Gaur, Maju Laxmi. Study of thermodynamic properties

of organic acids and bases in semi-aqueous and non-aqueous solvent mixtures. Jiwaji University.

14. Geeta Singh. Cyclisation reactions of di-anions from anils and dianils. Banaras Hindu University.

15. Ghosh, Purabi. Interaction studies with hydrogen kaolinite and hydrogen smectite system. University of Calcutta.

16. Golwalkar, Arun Madhusudan. Studies on transition metal (Fe and Cu) complexes of hydroxytriazenes. University of Udaipur.

17. Goswami, Raktima. Studies on penicillins and penicillin-resistant bacteria. University of Calcutta.

18. Gupta Hariom. Synthesis of some organic compounds having medicinal and analytical importance. Agra Univesrity.

19. Kailash Chandra. Studies. on the polarographic maxima of some aromatic nitro-compounds and their suppression by ionic and non-ionic surfactants vis-a-vis their influence on the kinetics of the electrode reaction. Agra University.

20. Kanjilal, Pranabranjan. Stereocontrolled synthesis of terpenoids and related compounds. University of Calcutta.

21. Kathpal, Aruna. Study of diazoketones synthesised from carboxylic acid chlorides with two sites of reactivity and higher diazoalkanes. Agra University.

22. Kurtkoti, Krishna Kirtinath. Studies in synthetic dyes. Sardar Patel University.

23. Lad, Manharlal Jhinabhai. Condensation polymers. Sardar Patel University.

24. Mahaptara, Sarata Chandra. Isolation and characterisation of some transition metal complexes (cobalt and iron). Sambalpur University.

25. Mehta, Suresh Chandra. Kinetic studies of the effect of some metal ions on the rates of oxidation of organic compounds by vanadium (V), manganese (II). University of Udaipur.

26. Melkani, Virendra Kumar. Studies in some aspects of photolysis and photochemical synthesis of organic molecules of biological importance. Kumaun University.

27. Mishra, Shiba Shankar. A study on the catalytic influence of enzyme. Sambalpur University.

28. Mitra, Pramatheschandra. Applications of some thiocarbo-hydrazide derivatives in micro-determination of metal ions. University of Calcutta.

29. Mittal, Archna. Chemical oscillatory reactions. Vikram University.

30. Mukhija, Suman. Development of analytical procedures for determination of organic compounds. Vikram University.

31. Nandapurkar, Jayant Narayan. Preparations and characterisation of Y (III) la(III), Pr(III), Nd(III), Sm(III), Gd(III) and Dy(III) mixed complexes. Nagpur University.

32. Nandwana, Ramakant. Kinetics and mechanism of oxidation of some metal chelates. Vikram University.

33. Pandey, Vibha. Chemical examination of some grasses of Kumaun and their relative nutritive value. Kumaun University.

34. Parsania, Parsotamlal Haribhai. High polymers: Physico-chemical properties of poly (2-methoxy) cyanurate of bisphenol-C. Sardar Patel University.

35. Patel, Biranchinarayan. Studies on metal complexes with uni- and poly-dentate ligands. Sambalpur University.

36. Patel, Ravjibhai Dahyabhai. Kinetics of haloheterocycles: Kinetics of nucleophilic substitution reactions of 2-chloroquinoxaline. Sardar Patel University.

37. Pawan Kumar. Studies on binding of some toxic heavy metal ions by natural polymeric materials. Nagpur University.

38. Pitchi Reddy, C. Studies on the synthesis of substituted bicyclic oxazolidines and dihydropyrans. Banaras Hindu University.

39. Rathi, Bhoopendra Narayan. Trace elements in the environment. M.S. University of Baroda.

40. Ray, Debsankar. On some aspects of time-resolved study of emissions in condensed phase. University of Calcutta.

41. Ray, Pratipranjan. Studies on the molecular properties of non-alternant hydrocarbons. University of Calcutta.

42. Sarma. R. Lekshmana. Role of sulphur compounds as addition agents during the electrodeposition of copper and nickel. Bangalore University.

43. Sayeed Ahmed, M. Analytical and physico-chemical investigations with organic haloamines. University of Mysore.

44. Sharma, Pramila. Nature of blue perchromate prepared in presence of acrylic acid. Agra University.

45. Singh, Jai Prakash Narayan. Studies related to potential carcinostats. Awadhesh Pratap Singh University.

46. Singh, Pramod Kumar. Abnormal selectivity relationships in the Friedel-Crafts alkylation reactions of toluene with electrophiles derived from esters and carbonyl compounds and studies on the reaction of diesters with dialkylamide metal salts. Banaras Hindu University.

47. Sinha, Radhikaranjan. Chemical examination of constituents of Alangium lamarckii. University of Calcutta.

48. Sreekantaswamy, H.S. Chemical investigations of lipids and proteins from the desilked silkworm pupae, Bombyx-mori-L. University of Mysore.

49. Uma, K.V. Analytical and kinetics investigations with chloramine-T. Bangalore University.

50. Vaidya, Vijay Kumar. Kinetics and mechanism of oxidation of organic compounds (malonic esters and related acids) by Ce (IV). University of Udaipur.

51. Venkata Narasimha Rao, Chellumkuri. Chemical investigations and utilisation of tobacco wastes. Andhra University.

52. Vyas, Harishkumar Indulal. Friedel-craft polymers. Sardar Patel University.

Geology

1. Bhattacharyya, Bijayprasanna. Peterological study of mica pegmalites in Bihar mica belt with special reference to their origin and emplacement and occurrence of muscovite. University of Calcutta.

2. Dalela, Ranjeet Kumar. Semi-sedimentation in a part of Son Valley, District Sidhi, Madhya Pradesh. Banaras Hindu University.

3. Dave, Alok. Studies in Miocene foraminifera and radiolaria of Andaman Nicobar Islands, Northern Indian Ocean. Banaras Hindu University.

4. Mallik, Pitendra Chandra. Geology, petrochemistry and metamorphism of coals at depth under the barren measures in Jharia coal field. Indian School of Mines, Dhanbad.

5. Pant, C.C. Structure and sedimentological studies of the Berinag-Gangolihata area, District Pithoragarh, Kumaun. Himalaya with reference to the localization of mineral deposits. Kumaun University.

6. Ramakrishna Rao, Garikipati. Agro-meteorological studies for better agronomic practices. Andhra University.

7. Sharma, A.K. Structural study of the area, East of Nainital with special reference to the hill-side instability. Kumaun University.

8. Srivastava, Dilip Kumar. Geochemical studies of the rock units of Sukma series around Sukama, District Bastar, M.P. with special reference to migmatization. Banaras Hindu University.

BIOLOGICAL SCIENCES

Biology

1. Balasubramanian, V. Embryological studies on some sympetalous angiosperms. Madurai-Kamaraj University.

2. Balasundaram, C. Eco-physiological studies in prawn culture (Macrobachium nobili). Madurai-Kamaraj University.

3. Jayaraj, Nirmala. Molecular basis of differentiation: Studies on the the past-transrcriptional regulation of early development in Artemia salima. Madurai-Kamaraj University.

4. Noorudeen, A. Mohamed. Effects of ultraviolet radiation on physiological processes. Madurai-Kamaraj University.

5. Palanichamy, S. Ecophysiological studies on a chosen spider (Cyrotophera cicatrasa). Madurai-Kamaraj University.

6. Rengasamy, A. Studies on the acid phosphatase and At-pase of the chloroplast membrane. Madurai-Kamaraj University.

7. Sharma, Renu. Impact of human activities and land use practices on some grazing land ecosystems. Part-I inventory of the physical compartments of the grazing lands. Saurashtra University.

8. Sinha, Somdatta. A study on the effects of external perturbations in some biological organizations. Jawaharlal Nehru University.

9. Singh, A.J.T. John. Ecology and behaviour of the bhole or Indian wild dogcuon, Alpinus pallas-1811 with special reference to predator relations at Bandipur. Madurai-Kamaraj University.

Biochemistry

1. Bhatt, A. Ramesh. Protease inhibitors in biological fluids. University of Mysore.

2. Diwivedi, Upendra Nath. Studies on kinetics of action and regulatory role of isocitrate lyase of castor seedling endosperm. Banaras Hindu University.

3. Ghosh, Sankarprasad. Biochemical studies of — THC (Delta 9 tetrahydro cannabinol) on male reproductive system. University of Calcutta.

4. Ray, Nirmalkumar. Biochemical characterization of alkaline phosphatase of vibriochlolerae. University of Calcutta.

5. Sharma, K. Krishna. Amylase inhibitors in plant tubers. University of Mysore.

Marine Biology

1. Sampath, K. Physiological studies on chosen-air-breathing fish. Madurai-Kamaraj University.

2. Selvanathan, M. Biology of a hillstream loach, noemacheilus triangularis day. Madurai-Kamaraj University.

3. Sujatha, Kandula. Taxonomic studies on three families of fishes represented in the fishery of Visakhapatnam. Andhra University.

Microbiology

1. Chattopadhyay, Saumyakanti. Studies on immunological mechanism in amoebiasis. University of Calcutta.

Botany

1. Arvind Kumar. Some aspects of physiology and biochemistry of sex-expression in flowering plants. Banaras Hindu University.

2. Bhatnagar, Mahendra Kumar. Studies on the anthracnose disease of yam (dioscorea alata L.). University of Udaipur.

3. Bhatnagar, Prem Swaroop. Genetics of certain yield characters and host symbiont interaction for nitrogen fixing ability in mung bean (Vigna radiata (L.) Wilczek) Banaras Hindu University.

4. Bhyraiah, G.C. Phylogenetic studies in the genus Crotolaria Linn. University of Mysore.

5. Brahmam, Mapuri. Flora of Ganjam District, Orissa. Utkal University

6. Chauhan, K.P.S. Studies on the impact of ageing on viability and cytogenetic behaviour of seeds of some crop plants. Agra University.

7. Dayal, T.R. Study of heterosis in potato (Solanum tuberosum L.) and the use of some induced tetraploids for its exploitation. Agra University.

8. Gour, Yogendra Singh. Tolerance of nitrogen fixing algae to pesticides. University of Udaipur.

9. Gupta, V.P. Studies on the production of antifungal antibiotics by soil-actinomycetes and control of some common post harvest fruit-rots. Agra University.

10. John, T.V. Studies on the conversion of cassava meal into single cell protein by Candida tropicalis. Maharaja Sayajirao University of Baroda.

11. Mathur, Mukesh. Ecological observations on Cassia sps. with special reference to seed germination, productivity and energetics. University of Udaipur.

12. Nandan, Rajeshwar. Efficiency and efficacy of selection procedures in high x high, high x low and low x low crosses of bread wheat (Triticum aestivum L.). Banaras Hindu University.

13. Nandi, Nimaichandra. Spore morphology of some East Indian ferns with reference to taxonomy and phylogeny. University of Calcutta.

14. Pande, R.C. Studies on the morphology, occurrence and ethno-botany of medicinal plants of Central Northern Sector of Pithoragarh District, U.P. with special reference to their commercial and traditional importance. Kumaun University.

15. Panwar, Kishore. Pollution in Nagda area due to Birla industrial complex discharges. Vikram University.

16. Parswanath, H.B. Studies on the air-borne pollen at Mysore. University of Mysore.

17. Purohit, R [illegible] ctivity and growth behaviour of P [illegible] elation to physico-chemical limn [illegible] (India). Kumaun University.

18. Qureshi, Sabir Husain. Phytopathological study on the damping off disease of methi (Trigonella foenum Greagum Linn). Jiwaji University.

19. Raghbir Chand. Cytological investigations of some Indian compositae plants. Punjabi University.

20. Raha, Chanda. Physiological studies on the leaf spot disease of jute (Corchorus capsularis L.) caused by Myrothecium roridum Tode Ex. Fr. University of Calcutta.

21. Ray, Jaladbaran. Investigation on some dematieceous fungi from West Bengal. University of Calcutta.

22. Sahu, Jayanti Kumari. Physiological studies on the effect of effluents of a molasses distillary on growth and nitrogen fixation in three filamentous blue-green algae. Berhampur University.

23. Saroha, Ajaipal Singh. Ecophysiological studies of some medicinal plants. University of Udaipur.

24. Sati, S.C. Aquatic fungi of Kumaun in relation to fish infection. Kumaun University.

25. Sengupta, Lakshmikanta. Cytochemical and cytological studies on normal and diseased human skin in culture. University of calcutta.

26. Sharma, Raj Kishore. Ecology of crop-weed competition with special reference to wild cafflower (Carthamus oxyacantha Bieb). Agra University.

27. Singh, Y.P. Maximization of mutation frequency and spectrum at different seed moisture levels in broad wheel (Triticum asestivum L.) Var Kharachia—65, under exposure to 60 C gamma radiation. Agra University.

28. Singhvi, Shanta. Evaluation of actions of herbicides with crops and weeds. University of Udaipur.

29. Srivastava, K.D. Studies on the spread of Puccinia recondita Robs, Ex-Desm. and its epidemiology. Agra University.

30. Subhash, N. Physiology of germination of paddy. Oryza sativa L. Var Bhura Rata, under saline condition. Maharaja Sayajirao University of Baroda.

31. Sundararajan, K.S. Circadian rhythms in the cotton plant, gassypitum hirsuum L. (c.v. Lakshmi). Madurai-Kamaraj University.

32. Tewari, Vinod. Genetic analysis of yield traits and leaf rust resistance in wheat (Triticum aestivum L. em Thell). Banaras Hindu University.

33. Tripathi, Chandra Knat Mani. Investigations on Ganga river to determine biological indicators of water quality. Banaras Hindu University.

34. Tumular, Ramaprabhu. Studies on some common aquateic weeds of Cultivable fresh waters. University of Calcutta.

35. Venkaiah, Kalava. Investigation on gum and gum-resin in producing tissue systems in some tropical trees. Sardar Patel University.

36. Vishwakarama, Kishan Singh. Ecological studies of Plagiochiasma appendiculatum Lehm. etc. Lindenb and Reboulia hemisphenca (L.) raddi on comparative basis. Vikram University.

Zoology

1. Bhatnagar, Maheep. Studies of enzymatic changes in some regions of the brain of rat of varying ages by histochemical and biochemical parameters. Uhiversity of Udaipur.

2. Chauhan, M.P.S. Studies on the helminth parasites of certain birds alongwith observations on the bionomics of the parasites. Agra University.

3. Chauhan, Tej Pratap Singh. Studies on the male accessory reproductivity organs of a rodent. Jiwaji University.

4. Chaurasia, Om Narayan. Studies on morphology systematics and ecology of land planarians. Awadhesh Pratap Singh University.

5. Das, Bhudev Chandra. Effects of X-ray irradiation on chromosomes of man and other mammals. Banaras Hindu University.

6. Das Gupta, Mrinal. An investigation on some aspects of the biology of mahseer. North-Easter Hill University.

7. Dekha, Rekha. Bio-ecological studies of important insect pests of stored grain in lower Assam. Gauhati University.

8. Deshpande, Dhanajay Jai Krishna Rao. Effects of X-irradiation on the reproduction and gonads of the red cotton bug, dysdercus koanigii Fabr. (heteroptera: Pyrrhocoridae). Banaras Hindu University.

9. Dhar, Rashmi. Histoenzymological studies on the distribution of certain enzymes in the thalamus, hypothalamus and certain portions of rhinocephalon and basal ganglia of rat. University of Udaipur.

10. Gupta, Chandrasheela. Immune response and serum protein analysis during experimental infection of Nematospiroides durbius in Swiss albino mice. Vikram University.

11. Gupta, Pradeep Kumar. A study of viviparus Benoalensis (gastropoda, prosobranchiata). University of Udaipur.

12. Hussain, Sabir. Studies on the autonomic innervation and histochemistry of the gastrointestinal tract of rhesus monkey, Macaca mulatta. Bhopal Vishwavidyalaya.

13. Jana, Amalendu. Studies on the nematodes belonging to the order dorylaimida in West Bengal. University of Calcutta.

14. Kalra, Alka. Studies on trophi in some Indian spring-tails (Collembola: Insecta) in relation to the taxonomy of the group. Agra University.

15. Kohli, A.K. The morphology and ecology of Indian water scorpion, Ranatra elongata Fabr. (hemiptera nepidae). Agra University.

16. Mehta, Sushila. An ecological approach to the morphology and physiology of Ganey tigrinum, a trematode parasite of cold blooded host, Rana cyanophyletis. University of Udaipur.

17. Punetha, J.C. Comparative study of endocrine glands of some hill stream fishes of Kumaun University.

18. Rao, I.S. Systematic morphological and ecological studies on some Indian fresh water bryozoa. Bhopal Vishwavidyalaya.

19. Satapathy, Naba Kishore. Age and sex-related bio-chemical studies in he brain of teleost, Oprtocephalus punctatus. Berhampur University.

20. Sharma, Pradeep Kumar. Effects of aging on the nervous tissue of Pariplaneta americana L. Jiwaji University.

21. Singh, Atul Kumar. In vivo and in vitro studies on thyrgenic affect of commiphora mukul in mice. Banaras Hindu University.

22. Srivastava, C.N. A comparative study of mopho-histology and physiology of the digestive tract of some Indian orthopterans in relation to the different feeding habits (herbivorous, Carnivorous and omnivorous). Agra University.

23. Talwar, Namita. Studies on the neuroendocrine complex and neurosecretory pathway in some selected Indian odonata. Agra University.

24. Thomas, Cheriyan. Cytogenetic studies on fleas, Xenopsylla cheopis Rothschild, 1903, X. astia Rothschild, 1911 and Ctenocephalides orientis Jordan, 1925 (spiconaptera, pulicidae). University of Kerala.

Medical Sciences

1. Ahujarai, Premalata. Liver toxicity by carbontetrachloride and its interactions with nutritional environment and other factors. Jawaharlal Nehru University.

2. Bhusari, Kishore Pandurang. Synthesis and study of some azasteroid potential medicinal significance. Nagpur University.

3. Dhar, Animesh. Studies of lead on certain aspect of protein metabolism in rats. University of Calcutta.

4. Lulay, Shashank Narayanrao. Studies on fat formation in fungi. Nagpur University.

5. Ravindranath, Y. Chromosome studies in leukemias. Kakatiya University.

6. Sundari, K. Bala Tripura. Immunological and genetic studies on human seminal plasma and sperm antigens. Osmania University.

7. Venkata Ramanaiah, T. Genetic effects induced by carbamazepine—an antiepileptic drug, in sub-mammalian and mammalian test systems. Osmania University.

8. Venkata Ramanairy T. Genetic effects induced by carbamazepine—an antiepileptic drug, in sub-mammalian and mammalian test systems. Osmania University.

Engineering and Technology

1. Bhatia, K.G. Failure phenomenon of rockfill dam subjected to earthquake. Indian Institute of Technology, Delhi.

2. Chandrasekhar, C.P. Growth and technical change in the Indian cotton mill industry: 1947-77. Jawaharlal Nehru University.

3. Deshmukh, Shriram Tulshiram. Studies on heat transfer in fluidized beds. Nagpur University.

4. Dhar, Vijay Kumar. Studies of fibres based on nylon-6 / PET polymer blends. Indian Institute of Technology, Delhi.

5. Gargesa, Gopinatha. Stress analysis and optimization of design parameters of a shringage-fitted component for industrial application. Bangalore. University.

6. Jain, Virander Kumar. Analysis of digital communication systems in impulsive atmospheric radio noise and design of an optimum receiver. Indian Institute of Technology, Delhi.

7. Kapur, Navin Kumar. A study of transversal filtering using charge transfer devices. Indian Institute of Technology, Delhi.

8. Nagpal, Sarita. Growth and properties of zinc oxide films from conversion of evaporated zinc selenide, for application to mis devices. Indian Institute of Technology, Delhi.

9. Ray, Goshaidas. Some new algorithms for the state estimation and control of inter-connected systems. Indian Institute of Technology, Delhi.

10. Sarkar, Samirkumar. Optical system assessment: OTF measurements and instrumentation. University of Calcutta.

11. Satyanarayana, A. Analysis of hydrostatic thrust bearing with MDR control and development of hydrostatic vibrator. Kakatiya University.

12. Simons, Rainee Navin, Studies on microwave slot lines and integrated fin lines. Indian Institute of Technology, Delhi.

13. Singh, Ram Narain. Finite element analysis of plane stress fracture and stable crack growth. Indian Institute of Technology, Delhi.

14. Singhal, Avinash Kumar. Optical design of linear solar concentrators. Indian Institute of Technology, Delhi.

15. Someswara Rao, Sri Rudrabhatla Narasimha. Analysis of elastic stresses in an orthogonal cutting tool: A study. Andhra University.

16. Sundar Murti. N.S. Studies on pelletization, carbothermic reduction and up-grading of chromite. M.S. University of Baroda.

17. Venkata Rao, J. Solvent dyeing of cotton with anionic dyes. Indian Institute of Technology, Delhi.

Agriculture

1. Aravind Reddy, S. Effect of high density planting on growth, yield and biomass production in Robusta banana. University of Agriculture of Sciences, Bangalore.

2. Babel, Karan Singh. A study of organisational and functional requirements of rural youth clubs and the role of local leaders on their development in India. Udaipur University.

3. Chakladar, Bishnupada. Studies on clonal propagation of sapota (Achrus zapota L.) and bael (Aegle manmelosc). University of Calcutta.

4. Chetan Swarup. Studies on copper in soils of Rohilkhand region of Uttar Pradesh with reference to paddy and wheat. Agra University.

5. Dungarwal, Himmat Singh. Direct and residual effect of elemental sulphur and gypsum on garden peas, applied in a continuous cropping sequence. University of Udaipur.

6. Gaur, Baboo Lal. Interrelationship between nitrogen fertilization and plant population on selected cultivars of mustard (Brassica juncea (L.) Czern and Coss) T-59 and R1-18. University of Udaipur.

7. Gowada, P. Ramana. Production potential of fodder cow pea varieties in coconut garden at different levels of nitrogen and lime. Kerala Agricultural University.

8. Indra Jeet Singh. Effects of N.P.K. and spacing on growth, flowering, yield and quality of bhindi (Abelmoschus esculentus (L.) Moench). Banaras Hindu University.

9. Komal Singh. Nutrient uptake and moisture studies in rainfed barley (Hordeum vulgare) and mustard (Brassica juncea) under different rates and methods of fertilizer use. Agra University.

10. Lakshmikantha Sastry, M.N. Studies on phytophthora species affecting plantation crops in Karnataka with special reference to Koleroga of arecanut and wilt of black pepper. University of Agricultural Sciences, Bangalore.

11. Mallikarjunaradhya, S. Studies on the post-harvest spoilage of some fruits and vegetables during transport, storage and marketing. University of Mysore.

12. Mathai, Susamma. Joint action of insect pathogens insecticide mixtures in the control of crop pests. Kerala Agricultural University.

13. Misra, Debi Prasad. Morphological studies and classification of soils of Hirakund Command area. Orissa University of Agriculture and Technology.

14. Mishra, Dharanidhar. Post-harvest decay of vegetables by Fusarium Spp. and their control. Orissa University of Agriculture and Technology.

15. Rajagopal Reddy, C. Screening of pesticides for their anti-transpirant property of crop plants under water stress and their possible antifungal property (in vitro). Sri Krishnadevaraya University.

16. Singh, N. Iboton. Studies on the relationship of greening disease with fungi in citrus. Punjab Agricultural University.

17. Singh, Shyam Narain. Response of dwarf wheat to micronutrients and methods of their application. Rajendra Agricultural University.

18. Vasudevan, K. Studies on induced mutations in rice (Oryza sativa L.). Orissa Agriculture and Technology.

Veterinary Sciences

1. Rajpoot, R.L. Energy and protein in goat nutrition. Agra University.

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CLASSIFIED ADVERTISEMENTS

BANARAS HINDU UNIVERSITY

Advertisement No. 13/1982-83

APPLICATIONS are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of University Employees is 60 years. The appointment will be made on two years probation on all permanent posts. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Orders of Rs. 7.50 in favour of the Registrar, Banaras Hindu University towards the application fee. Application forms alongwith the leaflet of informaton will be supplied free of cost by the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005 on receipt of Re. 0.70 paise stamped self-addressed envelope of 23 cm x 10 cm size. Candidates called for interview for these posts will be paid actual Railway fare by the Second Class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence bothways by the shortest route as per university rules. No other expenses will be paid.

Applications for each post be sent separately alongwith attested copies of certificates in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005.

Incomplete application in any respect will not be entertained for consideration. Those who are in service should apply through proper channel. M.O. or cheque will not be accepted towards the application fee.

For the posts of Lecturer, other things being equal preference will be given to Scheduled Caste/Scheduled Tribes candidates who are considered fit.

Applicants may send their bio-data alongwith attested copies of all the certificates and details on plain paper alongwith the application fee of Rs. 7.50 in Bank Draft/I.P.O. to avoid delay in case they do not get the prescribed forms in time.

Note: Number of vacancies are tentative and can vary according to needs.

Last date for receipt of Application is September 23, 1982.

Grade

Professor—Rs. 1500-60-1800-100-2000-125/2-2500.
Reader—Rs. 1200-50-1300-60-1900.
Lecturer—Rs. 700-40-1100-50-1600.

INSTITUTE OF AGRICULTURAL SCIENCES

1. **Professor of Genetics & Plant Breeding** (One)
2. **Professor of Horticulture** (One)

Qualifications: Essential

An eminent scholar wih published work of high quality, actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

3. **Reader in Physics & Mathematics** (One)

Qualifications: Essential

Good academic record with a Doctorate Degree or equivalent published work.

Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About 5 years experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidate with outstanding research work.

INSTITUTE OF MEDICAL SCIENCES

4. **Professor of Physiology** (One)
(N.P.A. as per rules admissible to Medical Graduates only).

Qualifications: Essential

(1) M.D. (Physiology)/M.Sc. (Physiology) Ph.D. (Physiology), D.Sc. (Physiology)/(equivalent qualification recommended by Medical Council of India. (2) Teaching experience as Reader in Physiology for 4 years in a Medical College.

Desirable

Have sufficient experience for guiding Post-Graduate students leading to the award of M.D. or Ph.D. Degree in Physiology/Research Publications in standard journals in any discipline of Physiological Sciences.

5. **Lecturer in Anatomy** (Two)
(N.P.A. as per rules admissible to Medical Graduates only)

Qualifications: Essential

(1) M.B.B.S. Degree or an equivalent qualification recognised by the Medical Council of India. (2) Post-Graduate/-Research degree in Anatomy like M.Sc./Ph.D./D.Sc./M.S.

Desirable

Research experience and publication in the subject.

Note

Non-medical candidates with M.Sc./Ph.D./D.Sc. in Anatomy will also be considered.

6. **Lecturer in Medicine** (One)
(N.P.A. as per rules).

Qualifications: Essential

(1) M.B.B.S. or equivalent degree recognised by the Medical Council of India. (2) M.D. (Medicine) or equivalent degree recognised by the Medical Council of India.

7. **Lecturer in Medicinal Chemistry** (One)

Qualifications: Essential

(1) Consistently good academic record with first or high second class (B+) M. Pharm. Degree with specialisation in Pharmacology or Pharmaceutical Chemistry or an equivalent degree of an Indian or Foreign University. (2) A Doctoral Degree in the concerned subject.

Desirable

(1) Experience of research on medicinal plants/Indian Medicines. (2) About three years teaching experience. (3) Research publications.

FACULTIES OF SCIENCE AND HUMANITIES

8. **Professor of Botany** (One)
9. **Professor of Computer Science** (One)
10. **Professor of Kannada** (One)
11. **Professor of Library and information Science** (One) (Spl. in experience in Modern Techniques of Library Science)

Qualifications: Essential

An eminent scholar with published work of high quality, actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at Doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Note

1. Those who have applied earlier for the post of Professor of Computer Science in response to our Advt. No. 9/1981-82 need not apply again.

2. Those who have applied earlier for the post of Professor of Kannada in response to our Advt. No. 1/1982-83 need not apply again.

12. **Reader in Computer Science** (One)
13. **Reader in Geology** (Spl. Mathematical Geology/Photogeology) (One)
14. **Reader in Geology** (One)
15. **Reader in Philosophy** (One)
16. **Reader in Chemistry** (One) (Spl. Chemical Spectroscopy/Theoretical Chem.)

17. **Reader in Analytical Chemistry (One)**
18. **Reader in Inorganic Chemistry (One)**

Qualifications : Essential

Good academic record with a Doctorate Degree or equivalent published work.

Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About 5 years experience of teaching and/or research provided atleast three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

Note

1. Those who have applied earlier for the post of Reader in Computer Science in response to our Advt. No. 9/1981-82 need not apply again.
2. Those who have applied earlier for the post of Reader in Geology (Spl. Mathematical Geology/Photogeology) in response to our Advt. No. 15/1981-82 need not apply again.
3. Those who have applied earlier for the post of Reader in Geology in response to our Advt. No. 20/1981-82 need not apply again.

19. **Lecturer in Geology** (Two) (Faculty of Science)
20. **Lecturer in Chemistry** (Organic) (One) (Faculty of Science)
21. **Lecturer in Chemistry** (Inorganic/Analytical Physical) (One) (Faculty of Sc.)
22. **Lecturer in Mathematics** (One) (Faculty of Science)
23. **Lecturer in Arabic** (One) Faculty of Arts)
24. **Lecturer in Psychology** (Three) (Faculty of Social Science)
25. **Lecturer in History of Sanskrit Literature & Philosophy** (One) (Faculty of Oriental Learning & Theology)
26. **Lecturer in Geography** (One) (Mahila Maha Vidyalaya)
27. **Lecturer in Mathematics** (One) Mahila Maha Vidyalaya)
28. **Lecturer in Botany** (One) (Mahila Maha Vidyalaya)
29. **Lecturer in Zoology** (Three) (Mahila Maha Vidyalaya)
30. **Lecturer in Home Science** (One) (Deptt. of Home Science—M.M.V.)
31. **Lecturer in Statistics** (One) (Mahila *Maha Vidyalaya)*
32. **Lecturer in Sociology** (One) (Mahila Maha Vidyalaya)
33. **Lecturer in Economics** (One) (Mahila Maha Vidyalaya)
34. **Lecturer in Psychology** (One) (Mahila Maha Vidyalaya)
35. **Lecturer in Urdu** (One) (Mahila Maha Vidyalaya)
36. **Lecturer in English** (One) (Evening College)
37. **Lecturer in Hindi** (One) (Evening College)
38. **Lecturer in Sociology** (One) (Evening College)

Qualifications: Essential

(1) A Doctor's Degree or research work of an equally high standard.

(2) consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in the relevant subject. (Acharya Degree in Darshan or Sahitya for the post No. **25** *only) or an equivalent* degree of a foreign University.

Having regard to the need for developing inter-disciplinary programme, the degrees in qualification No. 1 and 2 above may be in the relevant subject.

Provided that it the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in qualification No. 2 above.

Provided further that if a candidate possessing a Doctor's or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (*weightage being given to M.Phil.* or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard *within eight years of his appointment*, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

Candidates for being eligible for recruitment to the posts of Lecturers must have a first or high second class (B in the seven point scale) at the Master's level and for determining High Second class the Midpoint between the minimum percentage of marks fixed by a University for award of second division and first division may be taken and for determining consistently good academic record an average of 55% may be expected at the two examinations i.e. **Higher Secondary/Intermediate/+ 2 or equivalent examination and graduate examination prior to the Master's examination** (irrespective of the marks obtained in any of the two examinations or 50% marks in each of the two examinations separately.

Note

1. Other things being equal preference will be given to women candidates (applicable for all the post of Lecturers *in Mahila Mahavidyalaya).*

2. In case of selection of women candidates—willingness to accept the hostel duties and residence in the Girl's Hostel and charge of extra-curricular activities such as Games, N.C.C., Canteen, N.S.S. etc. (applicable for all the post of Lectuters *in Mahila Mahavidyalaya).*

39. **Lecturer in Chinese** (One)
40. **Lecture in German** (One)

Qualifications: Essential

(1) A Doctor's degree or research work of an *equally high standard;* and

(2) consistently good academic record with first or high second class (B in the seven point scale) Master's degree in the relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing inter-disciplinary programme, the degrees in (1) and (2) above may be in the relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (2) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record may be appointed provided he has done one year post M.A. diploma course in the teaching of foreign languages concerned from a university on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

Candidates for being eligible for recruitment to the posts of Lecturers must have a first or high second class (B in the seven point scale) at the Master's level and for determining High second class the midpoint between the minimum percentage of marks fixed by a University for award of second division and first division may be taken and for determining consistently good academic record, an average of 55% may be expected at the two examinations i.e. **Higher Secondary/Intermediate/ + 2 or equivalent examination and graduate examination prior to the Master's *examination*** *(irrespective of the marks* obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

41. **Reader in Education** (Two) (Faculty of Education)

Qualifications : Essential

(1) A Doctorate Degree or published work of a high standard. (2) A first or second class Master's Degree in the subject or an equivalent qualification with Master's Degree in any other subject. (3) About 5 years experience of Post-Graduate Teaching/research. (4) Experience of guiding research.

Desirable

(1) Consistently good academic career.
(2) Ability to teach in Hindi as well as in English.

42. ***Lecturer in Education*** *(Three)* (Faculty for Education)
43. **Lecturer in Education** (One) (Mahila Mahavidyalaya)

Qualifications: Essential

(1) A Doctor's Degree in Education or research work *of an equally high* standard: and

(2) *Consistently* good academic record with first or high second class (B in the seven point scale) Master's degree in Education and Master's Degree in a relevant subject taught in the

School or an equivalent degree of a foreign University.

OR

(1) A Doctor's degree in any University descipline or research work of an equally high standard; and

(2) Consistently good academic record with a M. Phil. degree in Education (which may be acquired while in service) or an equivalent degree of a foreign University.

Having regard to the need for developing interdisciplinary programme, one of the degrees in (1) and (2) above may be in relevant subjects, the other being in Education.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (2) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

1. For the purpose of determining high second class, the mid-point between the minimum percentages of marks fixed by a University for award of second division and first division may be taken.

2. For determining consistently good academic record a candidate should either have an average of 55% of the two examinations prior to Master's degree—(irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

Note

1. Other things being equal preference will be given to women candidates (for the post of Lecturer in Education, Mahila Mahavidyalaya only).

2. In case of selection of women candidates—willingness to accept the hostel duties and residence in the Girl's Hostel and charge of extra-curricular activities such as Games, N.C.C., Canteen, N.S.S. etc. (For the post of Lecturer in Education, Mahila Mahavidyalaya only).

44. **Lecturer in Vocal Music** (One) (Faculty of Performing Arts)

Qualifications: Essential

(1) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in the relevant subject or an equivalent degree or Diploma recognised by the University; and

(2) Two years research or professional experience or evidence of creative work and achievement in his field of specialisation or a combined research and professional experience of three years in the field as an artist of outstanding talent.

OR

A traditional or a professional artist with highly commendable professional achievement in the subject concerned.

45. **Professional Junior (One)** (For ladies only)—Mahila Maha Vidyalaya)

Grade: Rs. 700-40-900-E.B.-40-1100-50-1300.

Qualifications: Essential

(1) A first or second class B.A., B.Com, B.Sc. with first or second class M. Lib. Science Degree **OR** a first or second class M.A., M.Sc., M.Com. Degree with first or second class B.Library Science Degree or one year Diploma course in Library Science.

Desirable:

(1) Experience of having worked in a large Library. (2) Knowledge of latest techniques in Library Science.

Note

Those who have applied in response to our earlier Advertisement No. 20/80-81 inded not apply again. Male candidates will not be considered.

THE UNIVERSITY OF BURDWAN

RAJBATI, BURDWAN WEST BENGAL

Advertisement No. 3/82-83

Dated, 6 September, 1982

Applications in the prescribed form are invited for the post of Professor of Chemistry in the approved scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500/- plus dearness and other allowances, pensionary benefits according to the rules of the University.

Minimum Qualifications

1. (a) A Doctor's Degree or published research work of an equally high standard and
   (b) Consistently good academic record with first or high second class (B in the seven point scale) Master's Degree in the relevant Subjects or an equivalent degree of a foreign University.
2. Additional Requirements
   (i) At least ten years' teaching experience in postgraduate class;
   (ii) Competence to plan and supervise Research Project;
   (iii) Publication of sufficient merit.

Desirable Qualifications Specialisation or Proficiency

Any major area of the relevant subject.

The University Council may, on recommendations of the appropriate Selection Committee, waive any of the requirements in view of the candidates specialised knowledge in the subject. The choice of the Committee may not necessarily be confined to those who apply formally. Those who applied earlier in response to advertisement No. 15/81-82 **dated 2-2-83** need not apply afresh.

For application form and other information apply to the **Registrar** with self-addressed stamped (**0'50 p.**) envelope (9" x 4").

Last date for submission of application with requisite fee of **Rs.** 5/- is **27 September, 1982**

A.K. Chaudhuri
REGISTRAR

UTKAL UNIVERSITY

VANI VIHAR, BHUBANESWAR-4

Advertisement No. Estt-I/1886-C/A-16160/82

Dated : 10-9-1982

Applications are invited for the post of **Professor-cum-Principal** for the Madhu Sudan Law College, Cuttack. The last date for receipt of applications is the 30th **September, 1982.**

Qualification

1. The Candidate shall have:

(i) a good academic record with a first or high second class master degree in the subject,

(ii) Doctorate or equivalent research experience,

(iii) Capacity for conducting and guiding a research work and undertaking P.G. teaching in Law.

(iv) shall have ten years teaching and/or professional experience at the bar, at a High Court or higher level out of which at least 5 years should have been in teaching or ten years experience in state Judicial Service and must be at least in the rank of a sub-judge.

Scale of Pay

Rs. 1500-60-1800-100-2000-125/2-2500/-.

Prescribed application form can be had from the Registrar, Utkal University in person on payment of **Rs. 7.60** including local sales tax (Rupees seven and paise sixty) only or by post on receipt of a crossed Indian Postal Order for Rs. **10/-** (Rupees ten) only payable to the Registrar, Utkal University, Vani Vihar, Bhubaneswar-751004.

S.K. Ray
REGISTRAR

UNIVERSITY OF RAJASTHAN

JAIPUR

Advertisement No. 4/82

Applications are invited (through proper channel in case of those who are already in employment) so as to reach this office on or before **30th Sept. 1982** in the prescribed form available from the Registrar's office on payment of **Rs. 4/-** (**Rs. 4/-** extra in case required by post) for the undermentioned posts. Details of qualifications etc. will be made available with the application form.

1. Editor for Index India—1; In the grade of Rs. 1500-60-1800-100-2000.
2. Assistant Librarian-4: In the grade of Rs. 700-40-1100-50-1300.
3. Assistant Registrars 4: In the grade of Rs. 750-30-1020-40-1300-50-1350.
4. Assistant Editor for Index India—1 In the grade of Rs. 700-40-1100-50-1300.
5. Case Analyst-1. In the grade of Rs. 700-40-900-EB-40-1100-50-1300.
6. Research Associates in History-3, Economics-1, Sociology-1, South Asia Studies Centre-1, Rajasthan Studies Centre-2, Sufism-2 and Jain Studies-2 in the grade of Rs. 700-40-900-EB-40-1100-50-1300.

7. Senior Scientific Officer in U S I C —1 In the grade of Rs 1100-50-1600

8 Scientific Officer in U S I C —2 In the grade of Rs. 700-40-900-EB-40-1100-50-1300

9 Director of Physical Education—2 (One Permanent and One against leave vacancy) in the grade of Rs 700-40-1100-50-1300

10 For Special Assistance Programme in Philosophy :—
   (a) Research Associate Indian Philosophy—1
   (b) Logic and Philosophy of Science—1
   (c) Philosophy of Law/Social Philosophy/Political Philosophy/Moral Philosophy—1 In the grade of Rs 700-40-900-EB-40-1100-50-1300

Note. No of posts indicated above may be altered by the University without notice

Persons who had applied earlier for the above posts in response to earlier advertisements Nos 9/81, 6/81, 1/81 and 29/80 need not apply again They may however send any details which they want to add in their earlier applications

N M Kothari
REGISTRAR

OSMANIA UNIVERSITY
HYDERABAD-500007 (A P)
Advertisement No. 7/82
Dated 4th Sept 1982

Applications in the prescribed form together with the registration fee of Rs 5/- through M O /I P O /Challan 'A' are invited for the following posts in the University Service so as to reach the undersigned on or before **30 9-82**

1 Lecturer in Commerce } Rs 700-40-
2 Lecturer in Histroy } 1100-50-1600
3 Research Associate (Commerce) Rs 750/- consolidated
4 Technical Assistant (History) Rs 750 30-1020-35 1300

Age

Lecturers—Not above (35) years

Research Asst } Not above (30) years
Technical Asst }

Note

(i) Age limit does not apply to the employees of this University
(ii) 14%, 4% and 25% reservations are *made for Scheduled* Castes, Scheduled Tribes and Backward Classes respectively in the case of Lecturers only

Application forms can be had from the Director, University Press, Osmania University, Hyderabad, on payment of **Rs 4 50** *in person* or **M O** *or* by **I P O** *UNCROSSED* made payable to the Director, and by sending a self-addressed envelope duly stamped for ordinary or registered post

N B The candidates who have applied for the posts of Lecturer in History and Technical Assistant (History) in response to the Advertisement No 9/80 and 11/80 respectively need not apply again

B Ramachandra Reddy
REGISTRAR

INDIAN SCHOOL OF MINES

DHANBAD - 826004

Advt No 420003/82 **August 30, 1982**

Indian School of Mines, a residential institution "deemed" to be a University under the UGC Act wishes to recruit

One Estate-cum-Security Officer *in the pay scale of* Rs 700-40-1100-50-1300

Higher initial salary may be offered to candidates with special qualifications/experience Besides pay, ISM employees get allowances as admissible to Govt of India employees Total emoluments currently amount to Rs 1312 50 at Rs 700/- stage and Rs 2120-00 at Rs 1300/- stage

Persons holding lien on a permanent post may be offered Deputation Terms

Qualifications

(i) Bachelor s degree (Essential)
(ii) Experience and ability to organise security and control security staff and to investigate cases of theft, pilferage etc (Essential)
(iii) At least two years experience (at supervisory level) of management of a large estate including maintenance and up-keep of buildings, liaison with PWD and an understanding of the problems of estate maintenance (*Essential*)
(iv) Ability to read, write and communicate in Hindi (Essential)

Age

Normally not more than 45 years

General

Applicants should be prepared to appear for an interview at Dhanbad at short notice The successful candidates are expected to join immediately First class railway fare by shortest route is reimbursable to candidates coming for the interview A 'No Objection Certificate' from the current employer should be produced at the time of interview

How to Apply

Six copies of complete bio-data on plain paper [giving 1 1 Name in full and address (in capital letters) 1 2 Date of birth, 2 1 Nationality, 2 2 State if Scheduled Caste/Tribe (in such cases, certificates from appropriate authorities to be attached) 3 1 Particulars of academic and professional qualifications, 3 2 Details of experience/*positions held*, nature of duties, scale of pay (and last pay drawn), 4 1 Minimum salary acceptable, 4 2 Minimum *notice required* 5 0 Additional information if any] and accompanied by a money order receipt of Rs 8/- (Rs 2/- for Scheduled Caste/Tribe candidates) in token of remittance of application fee should reach the Registrar, Indian School of Mines, Dhanbad-826004 by **30th September, 1982.**

The School reserves the right to consider cases of 'Contact Candidates' whose names have been suggested by experts even though they have not formally applied for the post Relaxation in age and qualifications may be given in the case of candidates otherwise considered specially suitable

CANVASSING IN ANY FORM WOULD BE A DISQUALIFICATION

S P Varma
REGISTRAR

Government of India
Ministry of Education and Culture
(Department of Education)
German Academic Exchange Service Fellowships 1983-84

Applications on prescribed form are invited from Indian nationals, resident in India, for the award of 10 (Ten) Fellowships offered by the German Academic Exchange Service of the Federal Republic of Germany for advanced studies/research at Universities/research Institutions in the Federal Republic of Germany during 1983-84.

Only Sponsored Candidates are Eligible

1. **Subject Fields: Minimum qualifications:**

A. **Engineering & Technology including Applied Mathematics**

(for Doctoral/Post-doctoral studies/research)

(i) Micro-electronics
(ii) Fibre-optics
(iii) Cryogenics Engineering
(iv) Applied Mathematics
(v) Remote Sensing
(vi) Bio-technology

Uniformly good academic record with a Master's degree in/with the subject field selected.

(Applicants working in these areas with qualifications of the same level in field other than those specified, will also be considered).

B. **Agriculture & Allied Fields**

(For Doctoral/Post doctoral studies/research)—

(i) Agricultural Engineering
(ii) Dairy Technology
(iii) Agricultural Micro-biology

Uniformly good academic record with a Master's degree in the subject field selected.

NOTE

(1) Only candidates with 60% marks and above, at the Graduate/Post-graduate level are eligible. Where Grades are mentioned, the candidates must indicate the conversion formula adopted by the University/Institution.

(2) Candidates possessing a good knowledge of German Language will be given preferences.

(3) Candidates with equivalent foreign degrees will also be considered.

(4) Candidate's should have sufficiently good knowledge of India and the Donor Country.

Professional Experience after acquiring the required Academic qualifications:

Two years consecutive Practical Training/Research/Teaching experience.

These Fellowships are open to those who are working as Teachers in Universities/recognised Institutions of University Standard/Institutes of National Importance i.e. Tata Institute of Fundamental Research, Bhabha Atomic Research Centre, Indian Institute of Technology and Agricultural Institutes, etc.

Age Limit

32 years as on 1st January, 1983 (Two years relaxation, however, will be given to SC/ST candidates).

Duration

One year with effect from October 1983, with possibility of extension. The period of Fellowship will be preceded by a Compulsory four months German Language Course to be conducted in the Federal Republic of Germany.

Value

The Fellowship covers passage costs both ways, maintenance allowance @ D.M. 1,400 per month plus other allowances.

Last Date

For Supply of Application Forms: **24-9-1982**
For receipt of Applications: **4-10-1982.**

For application form and other details please apply with a self-addressed unstamped envelope (25cm × 10cm) to:

Ministry of Education & Culture
Government of India, E.S.4 Section,
Room No. 517, 'B' Wing, Shastri Bhavan,
New Delhi-110001.

NOTE

(i) **Applications in subject-fields other than those specified above will not be considered.**

(ii) **Candidates who do not possess the requisite, qualifications need not apply.**

(iii) **Applications which do not contain postal orders (or do not mention the number and date of postal order which has been sent alongwith the original applications sent through proper channel, where necessary) will not be considered.**

Sri Venkateswara University

Neelam Sanjeeva Reddi Bhavan, Tirupati

Advertisement No. FII-2/1982(2), **Dated 13-9-1982**

Applications are invited in the prescribed form for the following posts in the University Service on or before **30th September, 1982.**

S. No. 1	Post and Department 2	No. of Posts 3	Reserved For 4	Specialisation 5
	TEACHING			
I. S.V.U. COLLEGE OF ARTS & SCIENCES, TIRUPATI				
(A) School of Humanities & Extension Studies:				
1.	Asst. Director in Adult Education	One (Ty)		
2.	Reader in English	One		
3.	Reader in Hindi	One		
4.	Professor of Philosophy	One		
5.	Reader in Philosophy	One		
6.	Reader in Population Studies	One		
7.	Professor of Sanskrit	One		
8.	Reader in Tamil	One (Ty)		
9.	Reader in Telugu	One		
10.	Lecturer in German (Under foreign languages)	One	B.C.	
(B) School of Social and Behavioural Sciences				
11.	Reader in Commerce	One (Ty)		Cost Accounting and Management Accounting/Banking/Personnel Management and Industrial Relations/Financial Management.
12.	Reader in Economics	One (Ty)		Labour Economics
13.	Reader in Vietnamese Language (Area Studies Programme--Dept. of History)	One (Ty)		
14.	Lecturer in Vietnamese Language (Area Studies Programme--Dept. of History)	One (Ty)		
15.	Lecturer in French (Area Studies Programme—Dept. of History)	One (Ty)	B.C.	
16.	Reader in Law	One		Constitutional Law/International Law/Commercial Law/Crimes and Torts
17.	Lecturer in Psychology	One	S.C.	
18.	Reader in Sociology	One		
19.	Lecturer in Sociology	One		
(C) School of Mathematical and Physical Sciences				
20.	Lecturer in Chemistry	One		
21.	*Professor of Physics*	*One (Ty)*		
22.	Reader in Physics	One (Ty)		
23.	*Lecturer in Physics*	*One*		
24.	Reader in Statistics	One (Ty)		
(D) School of Biological and Earth Sciences				
25.	Lecturer in Bio-Chemistry	One		
26.	Reader in Geography	One		Agricultural Geography
27.	Lecturers in Geology	Two		
28.	Readers in Home Science	Two		Foods and Nutrition/Home Science Education Extension
29.	Reader in Zoology	One		Neurophysiology
30.	Lecturer in Zoology	One (Ty)		
II. S.V.U. COLLEGE OF ENGINEERING, TIRUPATI				
31.	*Readers in Civil Engineering*	*Three (2 Ty)*		*Environmental and Public Health Engg./Geotechnical Engineering/Hydraulics and Water Resources Engg./Surveying and Photogrammetry/Transportation Engg/Structural Engg.*
32.	Lecturers in Civil Engineering	Five (1Ty)	1 B.C. 1 S.C. 1 S.T.	
33.	Professor of Mechanical Engineering	One		Heat Power/I.C. Engines/Refrigeration and Air-conditioning
34.	Lecturers in Mechanical Enginnering	Three (2Ty)	1 B.C. 1 S.C.	

1	2	3	4	5
35.	Readers in Electrical Engineering	Two		Power Systems/Electrical Machinery/ Control Systems/Instrumentation/ Power Electronics/Computer Science/ Signal Processing.
36.	Lecturer in Electrical Engineering	One	B.C.	
37.	Readers in Electronics and Communication Engineering	Two (Ty)		Electronic Devices/Digital Electronics/ Electronics Circuits/Communications/ Microwave/Power Electronics/Instrumentation/Computers/Signal Processing
38.	Lecturers in Chemical Engineering	Three	1 B.C. 1 S.C.	
39.	Lecturer in Physics	One		
40.	Lecturer in Humanities (English)	One		
III.	**S.V.U.P.G. EXTENSION CENTRE, CUDDAPAH**			
41.	Reader in Commerce	One		1. Advanced Accountancy/ Cost Accountancy OR 2. Financial Management/Management Accountancy
IV.	**S.V.U P.G. EXTENSION CENTRE, KURNOOL**			
42.	Reader in O.R. & S.Q.C.	One		
43.	Lecturer in Economics	One		
V.	**S.V.U.P.G. EXTENSION CENTRE, KAVALI**			
44.	Professor of Physics	One (Ty)		Electronics/Acoustics Ultrasonics
VI.	**S.V.U. ORIENTAL RESEARCH INSTITUTE, TIRUPATI**			
45.	Reader in Sanskrit (Indian Culture)	One		
46.	Lecturer in History (Indian Culture)	One		
VII.	**T.T.D. CHAIRS**			
(a) (i)	Professor in Ancient Indian History & Arheaeology (Dept. of History)	One		
(ii)	Reader in Ancient Indian History & Arheaeology (Dept. of History)	One		
(iii)	Lecturers in Ancient Indian History & Archeaeology (Dept. of History)	Two	1 B.C.	
(b)	**Centre for Sri Venkateswara Studies** (S.V.U. Oriental Research Institute)			
(i)	Reader in Sanskrit	One		
(ii)	Lecturer in Philosophy	One		Philosophy of Visistadvita
(c)	**Annamacharya Chair** (Dept. of Telugu) Reader	One		
	NON-TEACHING			
VIII.	**S.V.U ORIENTAL RESEARCH INSTITUTE, TIRUPATI**			
	Research Assistant	One	S.C.	
IX.	**SVU COLLEGE OF ENGINEERING, TIRUPATI**			
	Chemical Analyst	One		

SCALE OF PAY

PROFESSOR : Rs 1500-60-1800-100-2000-125/2-2500
READER : Rs 1200-50-1300-60-1900
LECTURER : Rs 700-40-1100-50-1600
ASST. DIRECTOR IN ADULT EDN. : Rs 400-40-800-50-950
RESEARCH ASSISTANT : Rs 750-30-1020-35-1300 (Revised Pay Scales of 1978)
CHEMICAL ASSISTANT : Rs 800-35-1010-40-1450 (Revised Pay Scales of 1978)

All the above posts carry D.A etc., at the University rates.

The prescribed application form and other particulars can be had from the Registrar, Sri Venkateswara University Tirupati — 517 502, Andhra Pradesh on payment of Rs. 10/- either by Andhra Bank challan or State Bank of India challan or by Crossed Demand Draft drawn in favour of the Registrar, Sri Venkateswara University, Tirupati 517 502 Andhra Pradesh.

The requisition for the application forms in respect of teaching posts must be accompanied by a self-addressed envelope of the size of 12" × 8" duly affixing stamps worth Rs 2-50. Requisitions for the application forms and other particulars received without self addressed envelopes and/or without requisite fee will be rejected.

Application fee once paid will neither be refunded nor adjusted towards any fee payable.

K. C Reddy
REGISTRED

AIU Library

INDIAN INSTITUTE OF TECHNOLOGY
KANPUR
Advertisement No. 23/82

Applications are invited for following positions in the departments/programmes noted below at this Institute.

Department of Physics

(Electron Paramagnetic Resonance Laboratory)

Senior Scientific Officer -I
Scale of Pay: Rs. 1100-50-1600.
Senior Scientific Officer—II

Scale of Pay: Rs. 700-40-900-EB-40-1100-50-1300.

Position available : One

Qualifications

Senior Scientific Officer - I

Ph.D. in Physics plus three years experience in Electron Paramagnetic Resonance or related areas or M. Tech. in Electrical Engineering plus one year experience in handling related scientific electronic equipments.

Senior Scientific Officer II

Ph.D. in Physics in the area of Magnetic Resonance preferably Electron Paramagnetic Resonance/or Ph.D. in Experimental Physics with one year expeleince in the area of Electron Paramagnetic Resonance.

Department of Aeronautical Engineering

Junior Pilot Instructor

Scale of Pay: Rs. 700-40-900-EB-40-1100-50-1300. (Gliders)

Position available : One

Qualifications

Holder of Glider Pilot's Licence with Open Rating upto 600 kg. 1000 launches as Pilot-in-command with 250 hours of flying out of which atleast 50 hours should be instructional flying.

Age: Below 40 years

Nature of Duties to be Performed

To conduct flights for academic programme of the Department: to carry-out flights for research and development in flight mechanics by taking **aero-tow**; to hold abinitio and advanced instructional flying to the members of the Gliding & Soaring Centre managed and supported by the Department of Aeronautical Engineering and to carry out test flights of prototype gliders.

Advanced Centre for Materials Science

Scientific Officer 'B'/Research Engineer 'B'

Scale of Pay: Rs. 1100-50-1600.

Position available : Four

Qualifications

Doctorate degree in Materials Science or related areas

OR

M. Tech. (or equivalent) degree with at least 5 years of practical experience in a public or private undertaking with a record of meaningful development/project activity. In exceptionally meritorious cases, the Selection Committee may relax the required number of years of experience.

Candidates should preferably have experience of R & D work in any of the following areas;

(i) Dielectric and Magnetic Materials
(ii) Composite materials
(iii) Amorphous Materials
(iv) Electronic materials (including these for energy conversion)
(v) High strength materials

The selected candidates will be required to participate in various research projects in the Centre as well as to provide expertige for the running of its various facilities.

Department of Electrical Engineering

(Equipment Development Cell)

Research Engineer 'A'

Scale of Pay: Rs. 700-40-900-EB-40-1100-50-1300

Position available : One (likely to be two)

Qualifications: Essential

A Master's degree in Electrical Engineering, with specalization in any of the following areas:

(i) Digital and Linear Electronic Circuits,

(ii) Microprocessor based system

Desirable

Experience in design in the areas mentioned above.

Department of Humanities & Social Sciences

Professor in English

Professor in Philosophy

Professor in Economics

Scale of Pay: Rs. 1500-60-1800-100-2000-125/2-2500.

Asstt. Professor in Economics

Scale of Pay: Rs. 1200-50-1300-60-1900.

Lecturer in Economics
Scale of Pay: Rs. 700-40-1100-50-1600.

Postitions available : Two (likely to be 3)
Required Areas of Specialization

English: Modern British and American Literature, Literary Theory and Criticism.

Philosophy: Ethics, Contemporary Western Philosophy, Logic

Economics: Economic theory (Macro and Micro), Industrial Economics and development Economics preferably with specialization in Resources Development and/or Financial Analysis.

Qualifications: Desirable for all posts

The candidates must have a good academic background, have ability for teaching and independent research as evidenced by good contributions by way of publications of quality in journals of repute or developmental project works of merit in any one of the aforesaid areas of specialization.

Essential

Professor: Doctorate degree with good academic record and at least eight years professional experience of good quality outside the work for the degrees.

Assistant Professor: Doctorate degree with good academic record and at least three years of professional experience outside the work for degrees.

Lecturer: Doctorate degree with good academic record and adequate research experience resulting in research papers of good quality outside the work for degree.

The Institute has well equipped laboratories and central facilities. The Computer Centre has IBM 1800 and DEC 1090 Systems as also ECIL TDC 316 and a group of experienced programmers. The Institute has a well stacked Library with more than 2,17,000 Volumes and 18,000 periodicals.

The Campus facilities include a Primary and Higher Secondary School, a Health Centre, Swimming Pool, Shopping Centre, Gliding Club and Housing accommodation.

The post of Senior Scientific Officer I/II in the Department of Physics is contractual for a period of four years initially extendable by a further period of two years at the end of which the candidate is eligible for consideration to a permanent post, and carry benefits in the shape of CPF Scheme.

All the other posts are permanent and carry retirement benefits in the shape of CPF Scheme, CPF-cum-Gratuity Scheme, GPF-cum-Pension-cum-Gratuity Scheme as may be opted according to Rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates including Senior Scientific Officer I/II in the Department of Physics. Candidates called for interview will be paid second class railway fare from the place of stay to Kanpur and back by the shortest route.

In the category of Lecturer, Research Engineer 'A' and Sr. Scientific Officer II, one post will be reserved for Scheduled Caste/Scheduled Tribe candidate and in the event of non-availablity of suitable SC/ST candidate the reserved post would be treated as dereserved.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm × 10 cm size. Applications should be accompanied by a postal order for **Rs. 7.50 (Rs. 1.87** for SC/ST candidates).

Applicants who are employed in a Government/Semi-Government Organization or Institutions should send their applications through proper channel, else they will be required to produce a 'NO OBJECTION CERTIFICATE' from their employers at the time of interview.

Applicants from abroad may apply on plain paper enclosing a complete bio-data and names of three referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, IIT Post Office, Kanpur-208016, U.P., India **on or before October, 15, 1982.**

UNIVERSITY NEWS, SEPTEMBER 15, 1982 Regd. No. R.N. 7180/63 Postal Regd. No. D(C)-534

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

HYDERABAD-500007

Advertisement No. XV/82

Applications on the prescribed form together with the necessary application fee are invited for the following posts, in the Institute service, so as to reach the undersigned on or before **30-9-1982**.

1. **Reader/Fellow** (Scale of pay: Rs. 1200-50-1300-60-1900)

Department of Phonetics & Spoken English (Leave vacancy for about 2 years).

Qualifications: Essential

(i) Consistently good academic record with at least a high second class (B+) Master's degree in English.

(ii) A Doctor's degree with specialisation in Linguistics Phonetics or published work of an equally high standard.

(ii Specialised training in the Phonetics of English.

(iv) At least five years' experience of teaching at the college level or in a teacher-training institution including experience of teaching phonetics and spoken English.

Desirable:

(i) Specialisation in Experimental phonetics.

(ii) Ability to produce courses in spoken English.

Provided that any of the qualifications prescribed in (i) above may be relaxed in the case of a candidate with research work of very high standard. Provided further that if a candidate possessing a doctor's degree or equivalent research work is not available or is not suitable, a person possessing a consistently good academic record (weightage being given to M.Phil/M.Litt or equivalent degree or research work of quality) may be appointed, provided he has done research work for at least two years or has practical experience in a research organisation/laboratory, on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equally high standard within five years of his appointment, failing which he will not be able to earn further increments until he fulfils these requirements.

2 **Asst. Librarian (one post)**

Scale of Pay: Rs. 700-40-900-EB-40-1100-50-1300)

Qualifications: Essential

I or II class B.A./B.Sc. B.Com. degree and a I or II class M.Lib. Sc. degree.

Or

I or II class M.A./M.Sc./M.Com. degree and a I or II class B. Lib Sc. degree or a diploma in Library Science.

Desirable

(i) At least five years experience in a Library

(ii) Knowledge of a Foreign Language.

3 **Scientific/Technical Officer (2 posts)**

Scale of Pay : Rs. 700-40-900-EB-40-1100-50-1300.

Essential

(i) A good B.E. Degree in Electronics/ Telecommunication Engineering or M.Sc. (Phy) with Electronics specialization, from a reputed University or an equivalent qualification.

(ii) About 3 years experience in industry, R&D Laboratory or University in technical work involving design, development, maintenance or operation of electronic equipment of systems.

Or

(i) A good Diploma (obtained after a 3-year course following S.S.L.C. examination) from a recognised institution in Radio/Telecommunication/ Electronics/Sound Engineering.

(ii) About 10 years experience in industry, R&D laboratory or University in technical work at least a part of which involving design, development maintenance or operation of electronic equipment or systems.

Desirable

(i) Experience in broadcast receiving centres, sound recording or broadcast studios etc.

(ii) Knowledge of language laboratories, audience research and phonetics research.

General information

The Institute pays allowances at Central Government rates with the benefit of contributory provident fund-cum-gratuity according to rules.

A higher start in the grade may be considered for specially qualified candidates.

Qualifications are relaxable in exceptional cases.

Selected candidates will be expected to participate in teaching and research programmes in other departments also. They will be required to work at Hyderabad or at any of the Regional Centres of the Institute.

The Institute reserves the right to accept late applications in exceptional cases.

A candidate applying from outside India will be exempted from the submission of the application on the prescribed form and the payment of application fee.

Age of Retirement

60 years for Post No. 1.

58 years for Post No. 2 and 3

Instructions

1. Application should be made for post No. (i) enclosing seven copies of the list of papers published with full particulars along with one copy of each publication.

2. Candidates not found suitable by the Selection Committee for the post they have applied for may be considered for a lower cadre post.

3. Candidates called for interview from a place outside Hyderabad will be paid a contribution towards their travelling expenses at the rate of second class railway fare, including sleeper coach charges from the place of their work or residence, whichever is nearer, by the shortest route, subject to the production of a railway receipt.

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REGISTRAR

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University

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Dr. (Mrs) Madhuri R. Shah, Chairman, UGC, speaking at the function got up to mark the beginning of AIU House. On her right is Dr. Ramesh Mohan, President, AIU and on her left is Dr. Amrik Singh, Secretary, AIU.

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UNIVERSITY NEWS

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IN THIS ISSUE

UGC Assistance to Colleges during Sixth Plan 610
Task Before 'Fifth Estate' Leaders 611
Equality of Educational Opportunity 613
An Exploratory Study of Students Reactions in Colleges & Universities 614
World Conference of the International Council for Correspondence Education 618

Campus News

Workshop on Eradication of Illiteracy 619
Ship technology laboratories at Cochin University 619
NHEES project for S.V. University 623

Agriculture

KKV develops epicotyl grafting in Cashew and Jackfruit 624
Workshop of soil scientists 625
Agriculturists meet in Australia 626

Science & Technology

Viruses suspected in some cancers 627
India made dialyser 627
Research in Progress 628
Theses of the Month 629
Current Documentation in Education 631
Classified Advertisements 632

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

On Educational News

One of the functions of the AIU is to act as a bureau of information. Towards this end, some 20 years ago a Bulletin was brought out by the AIU. It was irregular in appearance and uneven in its coverage and the basic function of acting as a bureau of information could not be said to have been fulfilled. In November 1963 the first issue of *University News* was brought out. It was a bi-monthly to start with. In 1966 its frequency was changed into that of a monthly. With effect from 1st January, 1977 it has been a fortnightly.

It would be too much to claim that *University News* is all that it ought to be. No one is more aware of its inadequacy than those who have been involved with its publication. The fact however remains that this is the only forum where some kind of news about universities is brought together and disseminated. To that extent, the venture may be described as successful.

There are certain limitations under which the *University News* has to function. There is the obvious limitation of the universities being not as yet equipped enough to supply news. News gathering and news dissemination are both professional jobs. Except for a small number of universities the job is handled, when at all, by those who have no professional training. Consequently the sources of news are far from satisfactory. More often, the news which ought to get reported are not reported and only in consequential items of news get circulated.

A far more difficult problem however arises when news of a 'delicate' nature have to be carried. *University News* being a publication of the AIU, it becomes difficult beyond a point to be too candid or outspoken. In professional terms however it amounts to fighting a battle with one arm in the sling.

There is also another angle to this problem. Who in a university knows what is happening ? Basically it is the Vice-Chancellor and some people connected with him. Others hardly get to know what is happening and what is cooking. The Vice-Chancellor is so harrassed a person that he finds it difficult to become a source of news himself. If a professional person were to be around him, it would be his responsibility to collect news. There is no doubt that a good deal can be collected and disseminated. But the kind of people who would have this level of professional competence seldom come to a university. Apart from the fact that it is not remunerative enough for them, professionals like to see their names publicised prominently. This they can do best in a professional set up. That is why not many professionals look upon the university as suitable for that kind of activity.

Less than a dozen universities have departments of journalism. Most of them bring out some publication or the other. What they do however is far from reputable. At best those publications are an apology for a university newspaper. One can go beyond this and say that not a single university brings out a newspaper or a weekly which in professional terms can be regarded as respectable. The level of journalism that they impart to the students can be guessed from what they do, or better still, what they fail to do.

What if some of these people had been more professional and better informed ! It would make a world of difference to the job of news gathering. Universities are not a small affair. Most universities have budgets running into several crores and employees running into several hundreds. It would be naive to think therefore that very little happens in these universities. A good deal happens. Only it is not brought to light. All that one can hope and pray for is that these departments of journalism would take the initiative and redeem themselves to some extent.

As a matter of fact, there is an appalling apathy in regard to educational news. One simply finds it difficult to believe it. In a sense this is a symptom of the general malaise in which the universities find themselves. People are interested but only in themselves. They are not interested in issues which have a wider significance and indeed have a bearing upon policy matters. One has only to visit a university and hear all kinds of news but all these news would be about persons. Issues are seldom brought into it and this is both a cause and a symptom of what is happening within the universities.

One of my dreams has been to be able to edit a periodical dealing with education. Nobody however is prepared to invest in such a venture. It is not a small venture either. It would require an outlay of a couple of millions. Only a business house with experience of newspaper publications can handle it. None of the general newspapers which have the requisite resources have felt interested in this enterprise. This is a great pity. One of these days, whoever takes the intiative would be able to blaze a new trail. The situation is somewhat like what it was when a few of the European powers ventured out into other parts of the world. Whoever was the first to go and plant the flag became the owner of that land. The situation in regard to a periodical dealing with education is not too dissimilar.

30.9.82 **—Amrik Singh**

UGC Assistance to Colleges during Sixth Plan

E. B. Brahmankar*

There are more than 500 colleges in the state of Maharashtra. However, there are very few colleges which are of a viable nature. Colleges are located at District, Taluka and at small places. These colleges are having number of deficiencies. Well equipped buildings, laboratories, libraries are not available in most of the rural colleges. In addition from June, 1976 Jr. College Classes have also been attached to Sr. Colleges. Because of this fact, the strength of the colleges have gone up but facilities have remained the same. State Govt. is not giving any grant for construction of buildings, laboratories or expansion of library facilities.

The Sr. Colleges are facing number of problems because of the new policy of the Govt. of Maharashtra. Instead of paying buildings rent, the Govt. has started paying repairs and maintenance charges. This has completely hindered the building construction programme. For all round progress of the education, it requires funds. U.G.C. is a body which looks after the all round development of the higher education in the country. U.G.C. has come out with broad guide lines for financial assistance to colleges during VIth plan period. Certain norms and eligibility conditions have been laid down for receiving grants. The various development schemes are to be submitted to the U.G.C. through the university. The proposals to be submitted have been classified with 4 groups:

(1) Proforma 'A' — Basic grants for FIP/Books and Journals.
(2) Proforma 'B' — Assistance for development of undergraduate education in colleges.
(3) Proforma 'C' — Development of Post-graduate courses in colleges.
(4) Proforma 'D' — Development of colleges located in Tribal areas.

All colleges can make proposals for basic grants. In addition eligible colleges can make proposals for B, C and D. The respective University has to forward such proposals along with its recommendations for consideration of the Commission. The College Development Council may also guide the Colleges in preparation of the proposals. Proforma 'E' is to be used for AID (Assistance for Intensive Development) colleges programme.

Development of colleges is essential from the points of view of :

(a) Maintenance of proper standards.
(b) Ensuring optimum utilisation of facilities.
(c) Promoting innovation and change.
(d) Providing Vocational Education, etc.

The financial resources, being limited, the developmental needs are to be carefully identified. The degree course offered should be adequately strengthened and diversified to make them worthwhile to the students. The undergraduate courses need to be restructured to make them more relevant to the manpower needs of the region.

Establishment of non-viable colleges should be discouraged. The resources available with the U.G.C. in the VIth Plan would be largely utilised to provide adequate level of financial support for improvement of existing colleges. An effective machinery needs to be created at the state level for providing grant-in-aid to such colleges. The U.G.C. has two main aims in providing financial assistance (a) Improvement of standards and quality of education (b) removal of disparities and regional imbalances in higher educational facilities. Competence of teachers need to be improved through various training programmes.

For receiving grants, colleges must have (a) four deptts with minimum two teachers in each deptt. (b) 10 permanent teachers (c) 20:1 student-teacher ratio (d) atleast 180 students in degree classes (e) one each student college must spend Rs. 15 for books and journals and Rs. 60/- for science equipment.

The basic assistance would be available on 100% basis, from the U.G.C. for books, science equipment and teacher training.

- The colleges located in rural areas i.e. at taluka places and at other small places should try hard for getting various grants from the U.G.C. They should see that the college is made economically viable. The college should become the centre of all cultural activities in that area. It should cater to the various educational needs of the society. Merely submission of proposals will not do. The matter needs to be pursued through the University authorities., and also by having direct contacts with the U.G.C In Maharashtra, no college should be an exception of receipt of grants from the U.G.C. □

**Arts, Science & Commerce College, Saina.*

Task Before 'Fifth Estate' Leaders

G. Ramakrishnan*

Delivering the Rajaji Memorial Lectures recently in India, American economist John Kenneth Galbraith made two major points: first, mass general education is absolutely essential to combat accommodation to the culture of poverty. Second, poor countries must boycott arms purchases from rich countries. Professor Galbraith does not recommend education for poor countries only. He is also equally emphatic in advocating education and its autonomous power as the countervailing force against the self-destructive tendencies of industrial civilization. He has devoted two full chapters to education in his book. "The New Industrial State".

According to him, the educational and scientific estate, a new name given by him to higher education, should not merely carry out the orders of the industrial system but help the society to establish and achieve goals beyond material advancement. This estate, in my opinion, could be called the Fifth Estate after the traditional four estates. Whether a country is rich or poor, it has a catalytic role to play.

The Fifth Estate like the other four estates can contribute immensely to the advancement of democracy and development. Vested interests are not unique to the rich, advanced conutries. They operate equally pervasively in poor countries also. In fact this factor is a great obstacle to faster economic growth and greater participation by the citizens. In such a situation, if the fifth estate asserts its innovative, critical role, many serious economic and social problems would be well on their way to easier solutions.

While there has been fairly frequent discussions of the issue of academic freedom, the parallel and even more important issue of academic responsibility has not been discussed widely, if at all. The actual exercise of both academic responsibility and freedom would depend greatly on the personnel of the fifth estate. Their competence, honesty, objectivity and courage to withstand pressures of all kinds would decide its leadership role in society. In relation to its size the impact of the fifth estate has not been significant.

Political pressure

Many political leaders have denounced our higher education as elitist. In fact any system of high education is selective. But this selection is based on merit and its aim is not to reject any particular class or group In actual practice, however, this selective process does not function properly. Certain advantaged groups thrive at the cost of less fortunate groups. At this point political pressure increases and the fifth estate begins to face its dilemma with regard to its own autonomy versus the social goals.

This is an unenviable situation for the fifth estate to be in. But as the embodiment of a society's intellectual strength, it has to resolve this dilemma intelligently. The professor or a Vice-Chancellor is in the same position as that of a judge. It is a responsibility which has to be faced however difficult it is. The example of the former President of University of California, Clark Kerr, who had to leave the university as a result of a conflict with Governor Reagan should be repeated whenever the situation calls for it.

To name higher education fifth estate and place such responsibility on it may be considered too unrealistic by some. All great ideals began their jouney in similar difficult circumstances. The Indian Fifth Estate, though it does not make anyone happy, certainly has the potential to act as the decisive force for universal human values. Students, teachers and administrators should realise the creative power they have in their hands. Leadership is always taken under heavy odds. It is never thrown on anybody's palms without active seeking

The challenge

If the condition of the fifth estate is bedevilled by some of our society's economic and social problems, it is but natural. This is so in every society. But what we can legitimately demand of the fifth estate is that, if not in its entirety, at least in sizable part of it, it should exhibit qualities of transcendent strength and a willingness to establish higher values even if it is not encouraged by the political system. There lies the challenge for it. Frequently we hear complaints from educationists that they are not free.

In India this is true to a large extent because higher education is financed by the State. Here the strategy for the fifth estate must have two elements. One is to assert its values even while serving in government-controlled institutions. The Second element is an attempt to persuade the private sector to contribute more for higher education. These problems are similar to those related to ownership and control of the fourth estate. As in the case of fourth estate, freedom of the fifth estate will be ensured to a greater extent by a wide variety of ownerships and controls

It is time for the members of the fifth estate to start a serious dialogue with business leaders to work out a programme of joint action. A poor country needs economic growth urgently. At the same time this growth also should be of the right kind. If business is the agency for prmoting economic growth, the fifth estate should be its overall guide.

The fifth estate should reach hard to find its own Carnegies and Rockefellers. At present because of the availability of finance from the State, the Indian fifth estate has been none too eager to seek its benefactors in business. This attitude must change. Equally on the side of business, there must be a corresponding change of attitude. To see an inspiring

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model it need not go to the West. In the East it has Japan whose businessmen's commitment to education borders on the intensity of religious fervour.

The Indian fifth estate started with its peripheral role of supplying administrators for a stagnant law and order society. This role obviously was least demanding. Now the picture has changed completely. Its role is most demanding and central. It must aim for excellence.

No mean accomplishment

In spite of its huge population and pervasive illiteracy, India has achieved a great deal of technological sophistication and a certain democratic viability. This indeed is no mean accomplishment. Having come thus far, India should not falter and lose its balance. It must consolidate its gain and should make further and faster progress. The responsible initiative of the fifth estate can produce beneficial results.

There is an unfortunate tendency on the part of academic men to feel that there is nothing in their hands. I am convinced that, if not a great deal, there is some power in the hands of the fifth estate. A small group with extraordinary vision and strength should set in motion the process of change. *Status quo* is comfortable in the short run. But the fifth estate will have to pay the price of *Status quo* in terms of poor standards, low public esteem and lukewarm international recognition.

Code of conduct

Tentatively, I am proposing a brief code of conduct for the fifth estate. First, it must realise its independent status and be willing to assume an adversary role vis-a-vis the State. Second, as the primary agency of social criticism, it must constantly renew itself for such a task by continuing self-criticism. Third, it must stop complaining about the political system and the paucity of resources. It must supply a stream of innovations in all fields. Finally, and most important, it should be capable of abundant but realistic confidence for inventing a brighter future for itself and the nation.

Modern development is deeply dependent on the fifth estate. Since its contribution is so much, it must not hesitate to demand its voice in the shaping of the social ethic of the country. There is now a worldwide hunger for a total break from the rigid tendencies in the socio-economic sphere. Political and economic institutions in every country will not give up their privileged positions easily. Here the role of the fifth estate must assume significant proportions. A country like India should not move from the headaches of poverty to the heartaches of affluence. At every step deliberate choice is essential. Politicians and businessmen are the least deliberative in their action. They need the cool and objective analysis of issues by the fifth estate. As on poverty, Galbraith's opinion of the fifth estate is quite emphatic: "The name of a famous banker on the board of directors once advertised to the world that the corporation had access to the full capital resources of the economy. Now, the name of a scientist, or at a minimum, a college president is displayed, along with the former Air Force generals, to show that the firm is attuned to the very latest in technological advance."

I am sure that in the very near future, the situation in India also will not be very different. That is the reason why I urge this status and responsibility for higher education. Only to the extent that this responsibility is effectively discharged, the country will have its destiny shaped in the desired direction.

History of higher education in the West contains a long list of dedicated men who created and nurtured a large number of colleges and universities. Ezra Cornell founded Cornell University but it was the work of its President Andrew White which gave it distinction.

In India, Vice-Chancellors and Principals tend to get bogged down in administrative detail. A good Vice-Chancellor must keep an eye on the administration. He should not himself do what can be done by others. His task is setting of the right objectives for the university and the selection of men to accomplish these objectives. As leaders of the fifth estate, the task of the Vice-Chancellors is not confined to their own institutions. It is indeed nothing less than an unceasing involvement in the cleansing and renewal of the entire socio-economic processes. ☐

(Courtesy : The Hindu)

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Equality of Educational Opportunity

G.M. Malik*

Equality of educational opportunity does not mean identical education. Equal opportunity implies that the rich and the poor alike should have equal access to the educational system and programmes without any hindrance. All material barriers should be removed. Caste, colour or creed should not put any check on an individual to pursue course of education in accordance with his ability and aptitude.

Education Commission has observed, "One of the important social objectives of education is to equalize opportunity, enabling the backward or under-privileged classes and individuals to use education as a lever for improvement of their condition. Every society that values social justice and is anxious to improve the lot of the common man and cultivate all available talent, must ensure progressive equality of opportunity to all sections of population. This is the only guarantee for the building up an egalitarian and human society by which the exploitation of the weak will be minimized."

One of the ways to ensure equality of educational opportunity suggested by the Education Commission is to have a common school or the neighbourhood school. Today in India there is segregation in education itself. Two kinds of schools are functioning side by side: (1) a few private schools which charge high fees and cater to the upper classes, and (2) a large number of publicly maintained schools which provide free education to the masses. The former are far superior to the latter in terms of both the curricular and co-curricular programmes.

The Education Commission observes: What is worse, this segregation is increasing and is tending to widen the gulf between the classes and the masses. If this is to be eliminated, we must move towards the goal of common school of system of public education, which will be open to all children irrespective of caste, creed, community, religion, economic condition or social status, where access to good education will depend not on wealth or class but on talent, which will maintain adequate standards in all schools and provides atleast a reasonable proportion of quality institutions, in which no tuition fee will be charged and which would meet the needs of the average parent so that he would not ordinarily feel the need to send his children to expensive schools outside the system.

The recommendation of the Education Commission made in regard to equalization of educational opportunity have been generally accepted by the Government of India. But the question is how the expectations implied therein are going to materialize.

In the first place, in a class society like ours there is a certain in-built resistance to such measures. Coomb observes, "A narrow-based elite, governing a caste-bound society may honour in words the democratic aims of education, but in practice may show a marked lack of enthusiasm for actually' giving education to masses' fearing that this will lead in time to the dilution of the elites own power.

Secondly, even when all goes well, the result of any scheme based on equalization of educational opportunity may not be what is expected. This is pointed out by some studies conducted in Great Britain and U.S.A. as well as in India. For instance a study was made of education received by working-class children who were selected for the grammer school in England on the basis of the usual competitive examination held for all children at 11+. The grammer school in England is specially meant for education of the elite. It prepares for learned professions. The conclusion of the study is that inspite of the apparent equality of educational opportunity, very few working-class children stayed in the grammer schools to pass their final examination at 18, and move on from there to college, University or the professional life. On the other hand, the proportion of middle-class children who did so was very high. Neither the abolition of school fees, nor local prosperity of the working class could motivate a large number of working class children to complete the sixth form course. In this very study certain findings of another report, namely, Crowther's Report are quoted to show the alarming wastage of talent, particularly among the working class children. Such studies should be an eye-opener to us and mellow our optimism about what the equalization of educational opportunity or the common schooling can possibly do in terms of social transformation.

The present position of India in respect of providing equal opportunities of education leaves much to be desired. The educational development of the weaker sections, particularly the Scheduled Castes and Scheduled Tribes present formidable problems. In the sphere of elementary education the proportion of non-attending children in these communities in age group 6-11 years is around 60 per cent forming about one-third of the entire non-enrolled population of the country in this age group. At the middle-stage the enrolment in the age-group 11-14 years is as low as 23 per cent of scheduled castes and 16 per cent for Scheduled Tribes. It is in this section of the population that we still find some communities with almost zero literacy rates. A State-wise analysis of co-efficient of educational equality by different types of educational institutions during 1960-61 and 1970-71 presents a dismal picture as in the several States the co-efficient of educational equality declined implying thereby that the other communities have made faster progress than the Scheduled Castes and Scheduled Tribes in such States. Further the growth trend of educational equality within the States for different types of institutions has been highly erratic. Even by 1971 the crude literacy rates in several States amongst Scheduled Castes and Scheduled

(*Contd. on page 615*)

**Officer I/C GA, SRC, University of Kashmir.*

An Exploratory Study of Students Reactions in Colleges and Universities

S.L. Tulsyan*

In India students reactions has special features of its own and the poor economic prospects of the students in colleges and universities and the frustrations which they give rise to, are one of the very important causes of this highly disturbing phenomenon. The disruptive manifestations of this widespread discontent are in a large part due to this all important fact. But as the students are becoming increasingly aware of the lack of employment opportunities being primarily due to the inexpensiveness, really regressive character of the economy as a whole the deeper significance of their own economic outlook being so clouded, is more and more becoming clear to them. They are, on that account, linking their own frustration to the larger issues of status-quo versus basic social change. This awareness is, however, still limited to a very small proportion of students even though they are the most sensitive and even perhaps most influential section of the student community. The fact that they are most actively involved in movements like the retention or replacement of English as a subject on narrowly parochial grounds.

A new awareness of the meaning of their problems in terms of wider issues of the economy as a whole is growing, but what is more, it is clear that as a mass the university students are being affected by what is in the air and they are in a real, though somewhat inscrutable manner becoming indicators of the way the youth of today are listening and responding to the call of the future, acquiring a perception of the shape of things to come and have a sense of belonging to the world community. In India the immediate cause of these upheavals are generally very limited issues and do not still show the impact of all the forces that are at work and their complicated inter-actions. The stir is, however, there and it is likely to acquire a compulsion of its own and become a part of social pressures. Its far reaching significance in its ultimate form and shape cannot be predicted. It is, however, a part of some kind of ground swell which has a siesmic significance and its rumblings have to be taken as a warning and index of upheavals in the making.

This means, of course, that all the disquieting events of today are not to be taken merely as a problem of the students indiscipline. The students are behaving in an indisciplined manner, and are, when they disturb the even tenor of academic life, not amenable to control of the edudctional authorities. These happenings do indicate that the students are from time to time gripped by mass hysteria, their minds are moved by sub-conscious impulses and they are, in the state of Bihar, not open to the appeals of reason. But no new regulations, sanctions or rigours of enforcement would be adequate to bring order out of his disorder. The students do get out of hand on occasions. It is an old problem of youths exuberance and irresponsible collective behaviour. The present situation, however, has arisen owing to chain reaction of the movements of U.S.A., France, Germany, Czechoslavakia and even South Korea and U.S.S.R. The students have played a positive role in the movement of national independence in our country as in many others. But what is happening today is different, has a meaning of its own and possibly shows that one world in the making is casting its shadows before. The students get organized from time to time but they are not an organized power yet. They are not and should not be likened to the workers and the peasants organizations. They really are not a social force in that sense. Sociologically speaking they, particularly those who are in institutions of higher education, represent what is really a class which enjoys very differential advantages and in non-socialist countries belong, more or less, to privileged classes. And without being a social force in the accepted sense they are reflecting and expressing forces which are underfined, unidentified and perhaps undefinable and unidetifiable. This being so students indiscipline is the least appropriate way of bringing out the real meaning of the students new pattern of behaviour. The arm of authority has to be used as sparingly as possible to deal with this difficult but an entirely new situation and proceed empirically but also with intelligence for developments as and when they take place. The strength and effectiveness of the students in contributing to the development of the new and one world depend upon the extent to which they bring themselves in tune with the spirit of the times. Pursuits studies has to be their primary interest and task, but pursuit has to be carried on in accord with the needs of today and tomorrow. Students, everyone agrees, should not be examination ridden and one of the most urgent tasks which has to be carried out, is to reduce the dominance of examinations in our educational system. This cannot be accomplished without creating a world in which men's heads are held high and their minds are truly fearless and free. Students belong to the future; they are really the future, the stirrings among them all over the world express the impact of the future on their sensitive spirits. They have to pursue their studies seriously but in tune with the spirit of the times.

At present the conditions in our universities and colleges could not be more out of tune with this spirit. But of the stir among the students has to have any real meaning they have to awaken this

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Department of Commerce, Koshi College, Khagaria.

spirit among them and make it their moving force. Free minds in order to be creative have to be sensitive minds and understand the urgent need of working for a country in which men will not live on the lobour of the impoverished masses and science, knowledge and organized strength of the people will be harnessed to put an end to social parasitism in all its forms. Their studies have to be intimately related to this need and they have to prepare themselves for life and its work with clear understanding of this need. Their teachers have to be their true guides and inspirers in moving in this direction and courses of studies, syllabi, objects and methods of teaching and more than all this put together, the relations of students and teachers have to be radically altered to suit the need of today. Studies cannot be carried on in this spirit unless there is an all pervasive atmosphere of true communion of minds and spirit in our higher institutions which, of course, means that students and teachers have to be real friends and true companions in the common quest of the future.

This has to be our goal and give us the right sense of direction, but it is necessary to have a programme of action for the immediate future. In the meanwhile among the measures which have to be taken it is necessary to give students a sense of partnership in the management of the educational institutions which involves adjustments in institutional arrangements, but more than that authoritarianism in these institutions has to be reduced to the very minimum and spirit of equality and understanding has to be promoted to the utmost. This is the essence of democratisation of universities and colleges and can be realised by true co-operative endeavour among all members of these institutions to transform the existing atmoshphere in them and make them members of a real community. This is generally accepted in theory but in practice, as is well known, is completely at variance with it. We have to do what is possible to bring about this change. The students have to play a decisive role in this transformation. They have to give this matter their earnest thought which has to express itself in a programme of well articulated action. This will require the development and excercise of pressures when necessary, but more than this it will require right leadership, understanding of the way that this programme in action should be developed and confidence of the student community in its leaders and exercise of self-restraint when the situation calls for it. Mass demonstrations, even mass action may have really have their place in this programme, but they have to rely mainly on understanding of the essentials of this transformation and a growing sense of responsibility among students which, of course, means that the crude manifestations of mob fury and mob action and the consequent destruction of public property and other similar doings have to be purposefully eschewed and public opinion has to be created in the student community against unrestrained and unworthy ways of behaviour. If this can be done, it will show students power in a much more effective manner and occasions on which pressures can be developed and excercised, when necessary, will become uncommon and they will, when they are directed with a purpose, produce results and create self-confidence. The students have to play even more decisive role in the corporate life of their institutions than in their management. This will be a real training for the future and aquisition of experience of immense value. □

Equality of Educational Opportunity

(Cond. from page 613)

Tribes have been below 10 percent. The literacy rates particularly in the rural areas of females in several States were below 5 per cent. It appears that it is the hard core of population which has been left out and it is very difficult to bring it within the ambit of educational system unless suitable educational policies and schemes are devised and adopted on the basis of a deeper analysis of the situation.

From the point of view of our national goals, there is another shortcoming in the matter of providing educational opportunity. The so-called 'inverted Pyramid' of the British day still persists. The main beneficiaries of education (secondary and higher) that receive 60 per cent of the total educational expenditure are really the rich and well-to-do classes who form the top 30 per cent of the income groups and who occupy the 70 per cent of the places at the secondary stage and about 80 per cent of the seats at the University stage.

The Indian society, which is highly stratified and inegalitarian, is really a dual society which vests economic and political power in the rich and well-to-do classes who fall within the top 30 per cent of the income groups while the vast masses of the people are marginalized and deprived of most good things of life. The education system also follows this dual model and provides fairly good education (i.e. education which provides access to the privileged sector) to a few who come from good socio-economic backgrounds and little education of an indifferent quality or none at all to the vast bulk of the people The children of well-to-do class and rich get into the good quality schools and later come to hold important and prestigious positions in life for which the schools qualify them.

Strictly speaking the complete equalization of educational opportunity is an utopia if not a myth. In this hetrogeneous world it is not easy to create situations under which such equalization could become a reality. However, equality in a society is desirable, if not only for its own sake but, as an essential pre-requisite for the total social development, removal of social unrest, tensions and other accompanying train of vices in the society. Although perfect equality may be un-attainable, it is always possible to reduce the disparities and promote a desirable order of equality amongst all sections of the population. Since education is conceived as one of the key instruments for promoting equality, it is necessary that due weightage is given to develop and promote appropriate education for the weaker sections at least to such an extent that they do not remain in a disadvantageous position vis-a-vis other communities. □

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(R.K. JAIN)

World Conference of the International Council for Correspondence Education

(From Our Correspondent)

The 12th World Conference of the International Council for Correspondence Education was held under the Presidency of Professor Bakhshish Singh, at the University of British Columbia, Vancouver, Canada, from June 9 to 15, 1982.

The theme of the conference was 'Learning at a Distance' with a special focus on the learner counselling and tutoring the learner, the philosophy of distance education trends in the use of media in course production, distance education and national development, regional support and representation, the economies of distance education, research and evaluation learning languages at a distance managing distance education etc. etc.

The Conference Book, "Learning at a Distance — A World perspective" containing 108 papers was printed well in advance and mailed to all the registered participants so as to give them sufficient time to go through the papers before coming to the conference.

Mr Francis Fox, Minister for Communication of the Government of Canada, who opened the Conference on 9th June, 1982 appreciated the role of the ICCE in promoting the system of distance education. He said that Canada can well be proud having hosted three world conferences of the ICCE and of having developed a highly sophisticated methodology and infrastructure for the distance education system. He particularly emphasised the role of various communication media in making distance education an interesting and effective method of imparting education to varied clientele at all levels.

Prof Bakhshish Singh who has been the President of the International Council for Correspondence Education from November 1978 to June 1982, said in his Presidential address:

Distance education which has hitherto been known as independent Study, Home Study, Correspondence Education, etc., is not only an evolution, but also a revolution in the growth of various systems of imparting education at all levels. It is a non-formal, flexible, and more forward looking system than the conventional classroom system or the other traditional and formal systems.

Distance education is of particular relevance to developing countries as it provides an economically viable and academically sound alternative channel of imparting education at all levels.

As is usual with every new system, distance education in most of the countries had some teething troubles, and in some countries, these troubles are still there. Most of these troubles were caused by resistance from the traditionalists in the universities, partly due to their inborn urge to cling to the traditional system, and partly due to their ignorance or want of proper awareness of the advantages of the system of distance education. Lack of conviction and boldness on the part of policy makers and educational administrators also stood in the way of proper development of distance education. Consequently, in some of the developing countries, the distance education system has been developed only as an extension of the traditional courses. However, some countries have tried to tap the potentialities of distance education in providing interdisciplinary, vocational and job-oriented courses as well.

But I am afraid so long as distance education is under the control of traditional universities or institutions, there would not be much scope for the proper development of distance education. We must, therefore, think of distance education universities on the lines of open universities or autonomous national institutes of distance education, so that this innovative system may be developed on liberal, sound and progressive lines. If distance education is made subservient to the conventional universities then it will remain a poor relation of the traditional system of education, and not grow beyond that.

The Director General, UNESCO, was represented by Dr Henry Dieuzeide. Director, Divison of Structures, Contents, Methods and Techniques of education at the conference. Dr Dieuzeide in his speech at a special plenary session on the International Organization of Distance Education said that UNESCO attached great importance to non-formal education, and distance education seemed to serve specially the objectives of UNESCO. He assured the ICDE that UNESCO would be pleased to collaborate with the ICDE on various projects concerning distance education such as, publications, training programmes for developing countries etc. He further said that the 12th conference of ICCE with its diversity, quality and broad representation of the participants would be a landmark in the history of ICCE.

Apart from two Business meetings to review the work of the ICCE, there was a mix of plenary and parallel sessions at which the conference papers were presented and discussed.

The General Body of the ICCE at its second Business meeting on June 14, 1982, decided to change the name of the Council to the International Council for Distance Education (ICDE). It also decided to include research as one of its objectives.

Dr. John S. Daniel, Vice-Rector (Academic), Concordia University Montreal, Canada was elected as President.

Over 500 delegates from 55 countries of the world representing all types of distance education institutions including open universities attended the conference. □

Campus News

Workshop on Eradication of Illiteracy

(*From Our Correspondent*)

A three-day regional workshop on "Eradication of Illiteracy through the Involvement of Students and Teachers" was organised from 17th to 19th August by the University of Jammu in collaboration with the Indian University Association for Continuing Education, New Delhi. The objective of the workshop was to develop suitable models and feasible action-plans for implementation of Point 16 of the New 20-Point Programme enunciated by the Prime Minister of India for eradication of illiteracy through the involvement of students and teachers. Fortyeight delegates participated in the deliberations of the workshop out of which 23 delegates belonged to universities and colleges in the northern zone other than the University of Jammu.

Prof. M.R. Puri, Vice-Chancellor of Jammu University inaugurated the workshop. The keynote address was delivered by Shri L.P. Sinha, Vice-Chancellor of Himachal Pradesh University. About 16 papers were presented in all which invited lively discussion. The 18th August morning session was devoted to the identification of main impediments in the involvement of students in the Adult Education Programme while in the evening session important models and their implementation strategies were discussed. The valedictory session was held on 19th August in which reports of the two groups of the main impediments and models were discussed and the recommendation made.

In his valedictory address delivered by Shri S. Ramamurthy, Joint Secretary, Ministry of Education & Culture, Government of India told the delegates that this was the first workshop of its kind dealing with eradication of adult literacy through the agency of students, teachers and others. According to him, out of 4500 colleges in India only 750 colleges were involved in running Adult Education Centres. Again out of these 750 colleges only 150 to 160 colleges would account for 40 per cent of the coverage. It meant that about 4000 colleges in the country had nothing whatsoever to do in the field of adult education. Similarly out of total 125 universities in India, only 14 are actively engaged in this work and their work was not equally distributed thoughout the country but concentrated only in some parts of the country. This gave an idea of how little was being done and how much more needed to be done in this field.

The Vice-Chancellor Professor M.R. Puri in his presidential remarks thanked the participants for taking part in the deliberations of the workshop and suggested that much more time should have been devoted to the sharing session where the workers could share their experiences. Out of the many models presented in the workshop he preferred the functionality model because according to him this was the only way by means of which we could collect the adult learners and sustain their interest. He stressed the need of missionary spirit and sacrifice for this type of work and suggested that in order to achieve results more speedily, private enterprise be also involved. According to him the expansion of whole education system in India was mainly due to private enterprise and this was being introduced in Correspondence Education as well. In adult education work according to him this could achieve convincing results.

Ship technology laboratories at Cochin University

The laboratories of the Department of Ship Technology of the Cochin University were constructed at a cost of Rs. 7 lakhs. The work was carried out by the Kerala State Construction Corporation Ltd. The University Grants Commission has sanctioned Rs. 17 lakhs for purchasing scientific equipments needed for the functioning of the laboratory.

At present all installations of laboratory I are complete. Total floor area of this block is nearly 730 sq. m. Experiments on material testing, electronics/electrical engineering, welding, fluid mechanics mechanical workshop practices etc. could be conducted in various sections of the Lab. The major equipments installed are: (a) materials testing machines of various types (b) instrumentation on fluid mechanics (c) welding machinery, submerged welding equipment etc. (d) lathes, drilling machines, shaping machines, furnace etc. (e) electrical and electronic instruments and (f) soil testing equipment/instruments.

Shri K. Karunakaran, Chief Minister of Kerala inaugurated the Ship Technology laboratories, at a function organised to commemorate the eleventh anniversary of the University of Cochin on July 10, at the Trikkakara Campus of the University.

Vice-Chancellor Dr. K. Gopalan, who earlier welcomed the distinguished guests, requested the Government to give the university the funds to be used by the State Government for their proposed Centre of Advanced Studies in Science and Technology.

AIU House Construction Commences...

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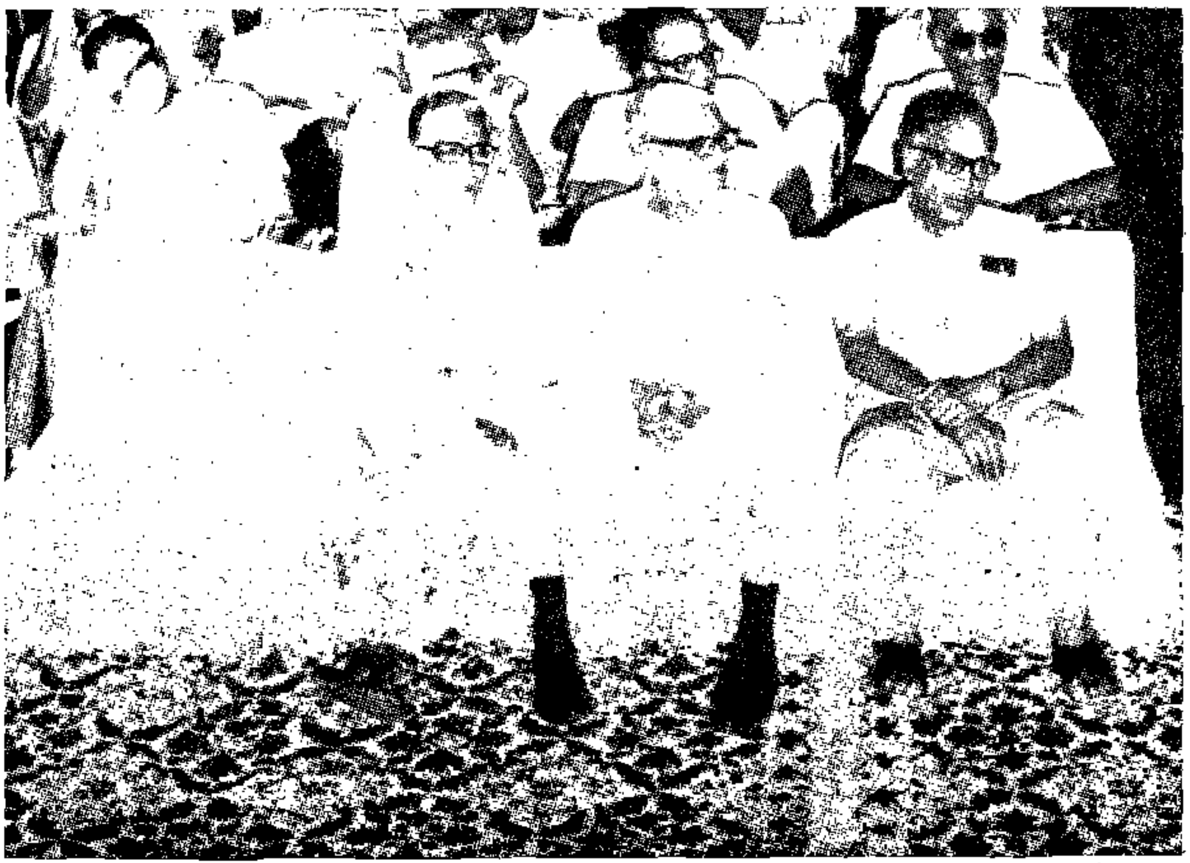
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.....A Photo Feature

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1. Dr. Ramesh Mohan, President. AIU welcoming Dr. (Mrs) Madhuri Shah.
2. Dr. (Mrs) Madhuri Shah turning the first sod.
3. Dr. Ramesh Mohan turns the next sod.
4. Dr. O.P. Jain, Director, IIT, Delhi.

5&6 A view of the invitees.

7. Dr. S.N. Sen, Former President, AIU & VC, Calcutta University.
8. Prof. M.V. Mathur, Former VC, Rajasthan University.
9. Dr. Rais Ahmed, Vice-Chairman, UGC & Former VC, Kashmir University.

6

Dr. Amrik Singh proposing a vote of thanks.

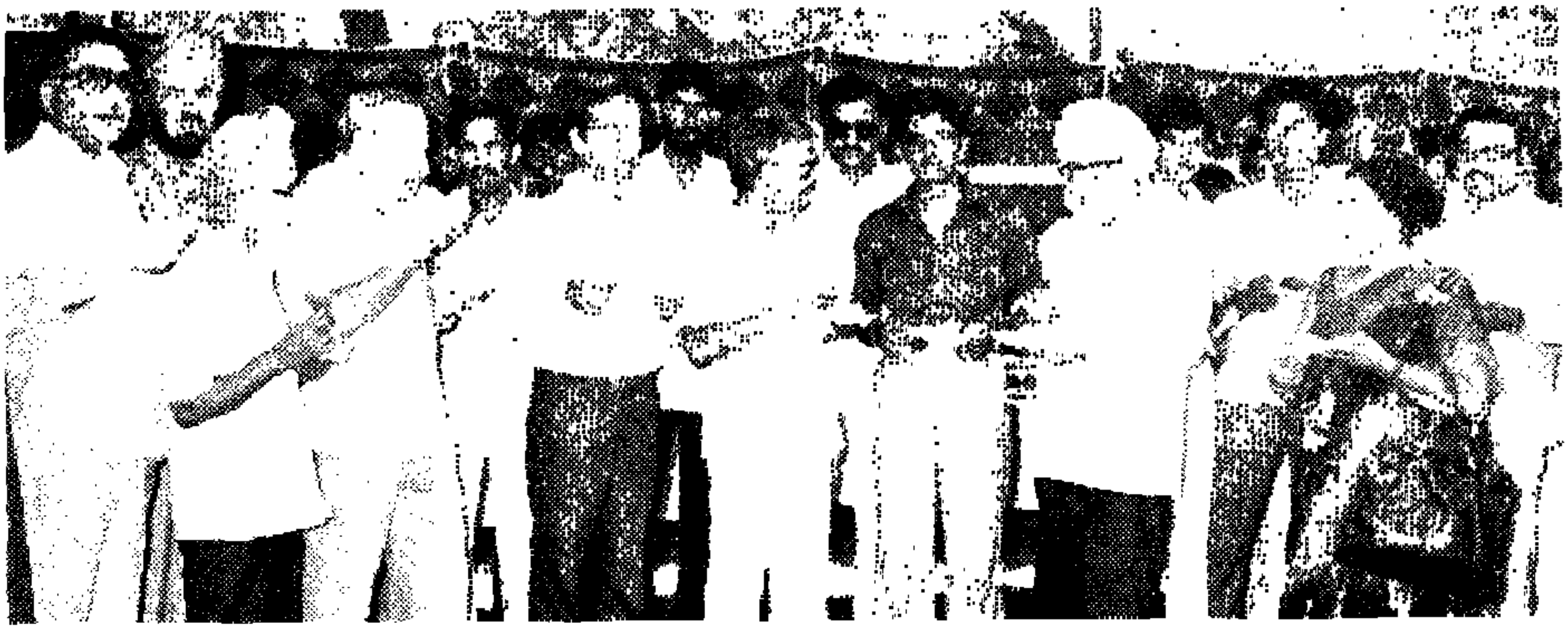
Dr. Amrik Singh Lays Down Office

Dr. Amrik Singh

Dr. Amrik Singh, MA (Pb), PhD (London) joined the Inter-University Board of India on 1.7.65. It was in 1975 that the Inter-University Board of India became the Association of Indian Universities. During this period of over 17 years Dr. Amrik Singh built up the Association to what it is today.

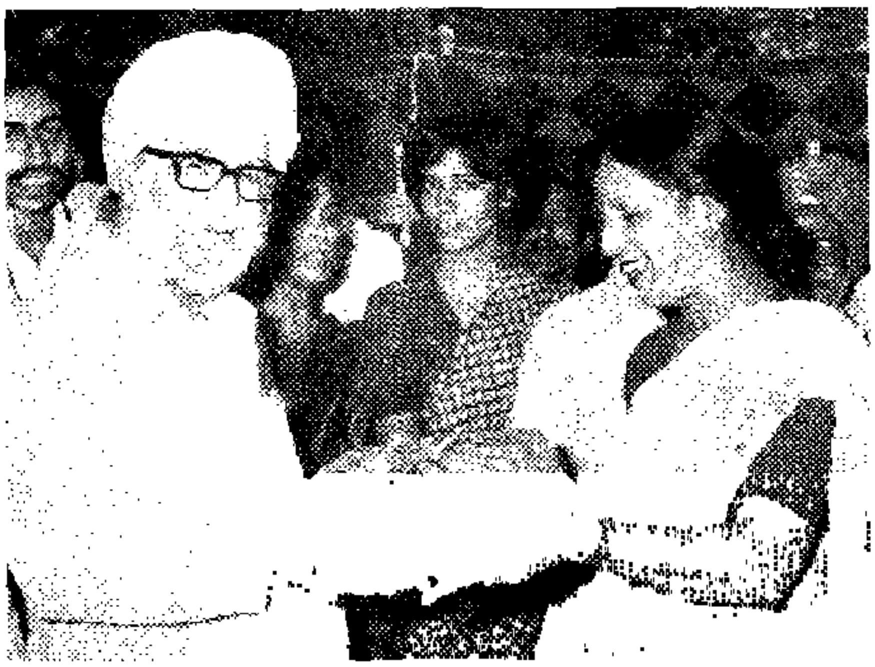
During this period he also served as Director of the South Campus of the University of Delhi for a period of two years and Vice-Chancellor of the Punjabi University, Patiala again for a period of two years.

He laid down office on 30th September, 1982 At a farewell function got up by the staff of the AIU he recalled his association with this organisation which spanned almost half of his active working life.



Dr. Amrik Singh with the staff members of AIU at a farewell function. On his left is Mrs Amrik Singh.

Dr. Amrik Singh with AIU staff members—another view.



Dr. Amrik Singh receiving a present from one of the employees of the AIU.

NHEES project for S.V. University

The Department of Home Science, Sri Venkateswara University, Tirupati has been chosen as the Andhra Pradesh State Centre for the UNICEF assisted project 1-A on Nutrition, Health Education and Environmental Sanitation (NHEES). The project envisages development of instructional package on nutrition, health education and environmental sanitation for primary school children and teachers and orientation of teachers, teacher educators and supervisors. It also envisages extension of education services in the field of nutrition, health education and environmental sanitation from school to community.

Chandragiri Block of Chittoor district has been selected as the area of operation and the sheme will be implemented in all the primary schools of the Block. The inaugural workshop for the project was held on 24th July '82 with the Minister of State for Education, Sri Alwar S. Das as the Chief Guest. Officials from the State District level, Project staff from the centre and the teachers from the primary schools of Chandragiri Taluk participated in the workshop. The objective of the one-day workshop was mainly to create an awareness to the project and to establish rapport between the teachrs and the project personnel.

The duration of the project is for a three year period involving financial assistance to the tune of 3.3 lakhs from UNICEF. The NCERT will assume overall responsibility for the implementation of the scheme and will be responsible for general planning, coordination and overall evaluation at national level. The Education Section of UNICEF, New Delhi, will be consulted, whenever necessary.

Short-term institute for teachers

The postgraduate department of Home Science, S. V. University, organised a 21-day UGC Short-Term Institute for teachers of Home Science in degree colleges in Andhra Pradesh.

The Institute had its main objectives as improving the teaching competency in planning, conducting and evaluation of practical instruction in Home Science subjects at undergraduate level.

Teachers deputed from the degree colleges, offering Home Science in the State of Andhra Pradesh partipciated. In addition to the local academic staff, four Professors were invited from other Institutions to serve as resource personnel for the institute.

Tasks in the revolution of the human mind and society

Delivering the Third Kamala Lectures at the Banaras Hindu University, Professor Amlan Datta stressed the need for according to the village of India a status which they badly lack today. Prof. Datta noted that the urban way of treating the village as merely the supplier of foodgrains is no longer valid in a democratic set-up. The villages are places where the majority of the population live and all changes in the administrative organisation of India will have the maximum impact on them.

However, Prof. Datta warned that it would be short-sighted to attempt to convert the villages into towns. It should be a corporate economy, he said. There should be a transformation in our whole perspectives and priorities. Prof. Datta concluded by remarking that non-violence provided the only true and effective method to achieve the above ends.

Professor J. D. Nagchowdhury, Director, Institute of Medical Sciences, Banaras Hindu University, presided over the function. Professor R. S. Misra, Head of the Department of Philosophy, Banaras Hindu University, welcomed the guests.

Kakatiya legal aid camp

The NSS Unit of the Kakatiya University College of Law and the Warangal District Legal Aid Committee headed by the District Collector, jointly organised a 'Free Legal Aid and Advice' camp for a day on September 5 at Jargaon, about fifty km from the university campus.

Inaugurating the camp, Prof. T. Vasudev, Vice-Chancellor of the Kakatiya University appealed to the advocates to spare at least two days in a month to render free legal advice so that the poor litigant in the court might not go unheard.

Among others who spoke on the occasion included Mr. C. Madhusudhan Rao, Reader, Mr. K. Vishun Murthy, NSS Programme Officer, Mr. Vinay Kumar and Mr. Vijaya Chander, students of the University College of Law.

UNESCO aid likely for Cochin University

Dr. (Mrs.) Martha Vannucci, UNESCO representative to India and Driector, UNESCO Regional Office of Science and Technology for South and Central Asia, after discussions with the officials of the Cochin University, indicated that the UNESCO may assist University to embark on two or three pilot research projects to be carried out with the aid of UNESCO.

150th death anniversary of Goethe

On the occasion of the 150th Death Anniversary of the German Poet, J.W. von Goethe, an exhibition was arranged by the Department of Foreign Languages, Karnatak University, Dharwad on 27th and 28th August 1982.

Books, Photographs, Posters and Viewcards, depicting Goethe's life were exhibited. Apart from the original works of the poet, his poems translated by the students of the Department into different Indian Languages like Kannada, Hindi, Marathi and English were appreciated by the visitors. As a part of the exihbition films were also screened.

Diamond jubilee of BHU Law School

The Diamond Jubilee Celebration of the Law School of the Banaras Hindu University, commenced on 4th August, 1982. The programme was inaugurated by Mr. Justice Balaram Upadhyaya (Retd.) of the Allahabad High Court, who obtained his L.L. B. Degree in the first batch of the Law Graduates passing out of the Banaras Hindu University.

BHU releases cultural ethos albums

Bharat Kala Bhavan of the Banaras Hindu University, has launched a project to present the country's cultural ethos through the publication of attractive albums. The first 2 albums narrating the popular themes of Radhakrishna and the Ramayana have been published and released.

Grant for Amritsar college

The Punjab Cabinet is reported to have decided recently to grant Rs. 5 lakhs to Khalsa College, Amritsar for the preservation of its historic character and the architectural beauty of its building by undertaking urgently needed repairs.

BITS alumni cell

BITS has nearly 20,000 alumni and so an Alumni Cell has been established in Student Welfare Division to promote, develop and liaison between the Institute and the Alumni Chapters. It is also proposed to compile a National Register of BITS Alumni and conduct International Convention of old boys in 1983.

New courses at Madras University

Two new courses are being offered by the Centre of Advanced Study in Botany of the Madras University from this academic year. These are a two-year M.Sc Course in Industrial Microbiology and a 2-year M.Sc course in Ocean Life Sciences, the latter jointly with the Department of Zoology, Geography and Geology

Seminar on Harijan and mass conversions

An all-India Seminar on Harijan and Mass Conversions sponsored by UGC will be organised by the Department of Sociology, University of Madras on December 26 & 27, 1982.

KKV develops epicotyl grafting in Cashew and Jackfruit

(*From Our Correspondent*)

The Konkan Krishi Vidyapeeth, Dapoli has evolved and released four high yielding cashew varieties, viz. Vengurla 1, Vengurla 2, Vengurla 3, and Vengurla 4. The adult trees of these varieties give on an average 20 kg nuts per tree per year which is many times more than the average yield of 1.5 to 2.0 kg per tree per year of the local types.

Being cross pollinated and heterozygous plants, these need to be propagated vegetatively in order to get uniformly high yields. Though so far various vegetative methods have been reported to be successful, each of them has certain limitations. The Konkan Krishi Vidyapeeth has now standardized a new technique called 'epicotyl grafting' for commercial production of cashew grafts. In this method, just germinated and less than 10 days old cashew seedlings raised in polythene bags are wedge grafted with mature and precured scion sticks. During February to May, 60 to 70 per cent success is obtained in this method.

The Vidyapeeth has identified eight high yielding jackfruit trees giving excellent quality firm fleshed (*Kapa*) fruits. In the absence of standardized commercial method of vegetative propagation, it was not possible to undertake large scale multiplication of such selections. The Vidyapeeth has standardized the epicotyl grafting technique for jackfruit also. This technique is almost similar to that described for cashew. April to May is the optimum period for jackfruit epicotyl grafting when as high as 90% success is obtained.

The epicotyl grafts prepared during the season could be planted in the field during the ensuing monsoon. Establishment of epicotyl grafts in the field is excellent. Being easy, cheap and rapid method, it could be used for production of cashew and jackfruit grafts on a massive scale. This technique is being employed on commercial scale at the Konkan Krishi Vidyapeeth. During 1982 season about 20,000 epicotyl grafts of cashew and 3,000 grafts of jackfruit were raised by the Vidyapeeth. The response of farmers for such epicotyl grafts is overwhelming.

HAU proposes Centre for Rural Development Study

A three-day agricultural officers workshop was held at Haryana Agricultural University (HAU) recently for finalising the package of practices for the ensuing rabi crop. Shri Surender Singh, Haryana Minister for Agricultre who inaugurated the workshop lauded the work of HAU scientists especially in dry farming and said that research on this aspect needs to be further intensified. He further called on the scientists and Field Officers to jointly quicken the pace of transforming technology to the remotest village.

Earlier, speaking on the occasion, Dr. J. S. P. Yadav, Vice-Chancellor, said that rapid rise of water-table was a major threat to agriculture in Haryana. He said that this problem would be further aggravated because of the poor quality of the underground water and urged upon the government to tackle the problem on an extensive scale.

Dr. Yadav further said that the university proposes to set up a centre of Rural Development Study to have an indepth knowledge of the problem faced by the farming community particularly small and marginal farmers who constitute about 72% of the farming community.

In the fore-noon Shri Surender Singh spent two hours at the university's research farm and visited the Cotten, Sugar-cane medicinal plants, Horticulture and Dry Land Sections. He was received by the Vice-Chancellor, Dr. J.S.P. Yadav and senior scientists of the university.

Scientists seek more food from wheat

Researchers at La Trobe University, Melbourne, are studying the biochemistry of plant cell walls to unlock valuable unused sources of proteins, vitamins and minerals.

The walls chosen for intensive study are from cells of cereal grain storage tissue.

The cells in the storage tissue (endosperm) are packed with the starch and gluten food reserves which are used to nurture the developing seedling and have been exploited by man as a major source of food carbohydrate and protein.

A layer of cells known as the aleurone surrounds the endosperm. The sells are thick-walled, survive milling and are collected intact as as part of the bran. The thick walls of unbroken aleurone cells are not susceptible to enzymic degradation in the digestive tracts of man and domestic animals such as pigs and poultry.

As a result aleurone protein of high nutritional quality, useful B vitamins and minerals within the cells cannot be digested at least until the bran reaches the colon, where microbial action degrades the walls and protein.

Professor Bruce Stone and Dr Geoffrey Fincher, of the Department of Biochemistry, and Professor A. W. Wardrop, of the Department of Botany, have led researchers in determining the organisational plan of the aleurone cell walls, their chemistry and their enzymic degradation. This has provided important clues towards the solution of the practical problem of unlocking the protein and other nutrients in unbroken aleurone cells.

Professor Stone said he was assessing two approaches to the problem of making the contents of aleurone cells available.

One was by adapting conventional milling procedures for the mechanical breaking open of the thick-walled aleurone cells. In co-operation with flour millers, pilot-scale processes have been developed to isolate highly enriched aleurone from commercial bran. These preparations are being used to assess various mechanical disruption techniques aimed at developing commercial-scale technology.

Researchers will also be able to assess the nutritive value of aleurone protein through livestock feeding trials.

Another approach being followed by the researchers is through the modification of the aleurone cells with enzymes. This occurs naturally during germination when the outer, thicker wall layer is partially digested by endogenous enzymes while the inner, thinner layer remains intact. Attemps are being made to reproduce this effect with exogenous enzymes.

The researchers said their work not only promised to be of practical significance but would also provide fundamental information on the molecular mechanism which protects part of the aleurone cell wall from digestion.

Bran, with its high content of aleurone cell walls, is the classical source of dietary fibre, and food products rich in barn are finding commercial importance in diets designed to prevent bowel diseases.

The comprehensive chemical and physial examination of aleurone cell walls has contributed important basic information on this form of dietary fibre.

[*Courtesy*: Australian Agricultural Newsletter]

Workshop of soil scientists

Dr. Sukhdev Singh, Vice-Chancellor of Punjab Agricultural University said that in some States untrained persons were manning the laboratories for testing the quality of the soil of the farm fields. Testing of the soil, interpreting the results of those test for the farmers and recommending the quantity of different types of fertiliser to be used are complex excercises and could be properly performed only by well-trained scientists, he said at a workshop of the soil scientists of the country sponsored by the the Indian Council of Agricultural Research (ICAR) on the project "soil test crop response".

The Vice Chancellor said that distribution of fertilisers among different areas was not in the right proportion. It is estimated that 30 per cent of the area

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received 60 per cent of fertilisers. In the absense of Dr. Sukhdev Singh his address was read by Dr. G.S. Gill, Associate Director of Research. In Punjab he said, field experiments had shown that 62 per cent fields are dificient in nitrogen, 47 per cent in phosphates and 20 per cent in potash and 50 per cent in Zinc.

Dr. N.S. Randhawa, Deputy Director General for Soils and Agricultural Engineering in the ICAR said that the use of more fertiliser and irrigation was the only answer to the food needs of the increasing population.

Inaugurating the Workshop, Mr. Gurmel Singh, former Director of Agriculture in Haryana and a member of the Board of Management of PAU, said that the result of the soil tests and recommendations for fertilisers should be conveyed to the farmers in the language the farmers could understand easily.

Earlier Dr. N.T. Singh, Head of the Department of Soils welcomed the delegates attending the workshop. Dr. S. S. Prihar, Professor of Soil Physics proposed a vote of thanks.

Agriculturists meet in Australia

Agriculturists from eight countries, including India, Thailand, Indonesia and Malaysia, attended the first meeting of the policy advisory council of the newly created Australian Centre for International Agricultural Research (ACIAR) on August 30.

The meeting, held in Canberra, was attended by the council president, Sir John Crawford, and the newly appointed director, Professor John McWilliam. Other countries represented at the meeting were Papua New Guinea, Western Samoa, Nigeria and Zimbabwe.

Council members considered the discussion paper of the centre's work program. They noted the need for further extensive consultations with developing countries to decide how Australia's research capability could best help solve their problems.

ACIAR was set up by the Australian Government this year as a statutory body. Its function will be to mobilise and expand Australia's research capacity to help developing countries in agriculture and related areas. It will not undertake research but will fund research undertaken by Australian institutions specifically to benefit developing countries. A key element of the research programs ACIAR commissions will be the involvement of institutions and their staff working in relevant areas in developing countries. Research may be carried out at an Australian institution in association with research workers from developing countries; or Australian scientists may work with their counterparts in institutions in developing countries; or research projects could be divided between Australia and overseas. The next meeting of the council will be in Canberra in November and in Papua New Guinea in May 1983.

Pantnagar develops two new varieties

Two new varieties of forage crops developed by the Pantnagar University of Agriculture and Technology have been released by the Central Varietal Release Committee for their general cultivation on a country-wide basis.

The new varieties are UPC 5286 of compea and UPO 94 of oats.

New wheat varieties

Eight new varieties of wheat have been identified as promising for different regions of the country and have been recommended for adaptive trials during 1982-83.

This follows the deliberations at a wheat research workshop organised by the Indian Council of Agricultural Research.

The workshop also emphasised the need for intensifying the research efforts in wheat growing in rainfed areas, particularly in central and penisular India.

New rice varieties for A.P. farmers

The Central Variety Release Committee of Andhra Pradesh Agricultural University has approved a list of nine new varieties to be released for the benefit of rice growing farmers. The new varieties are: RGL-52, BPT-1235, MTU-4407, BPT-3291, MPU-6024, PLA-1100, MTU-4569 and AKP-70-73. Some of these have already become popular and are raised extensively by the farmers in the State.

Cropping sequence for Thanjavur farmers

Growing rice during kharif and rabi seasons and groundnut during summer season is the most profitable cropping sequence to fetch the highest total production as well as maximum net profit in Thanjavur district.

RELEASING IN OCTOBER, 1982

1. **Bibliography of Doctoral Dissertations— Natural & Applied Sciences 1979-80.**
2. **Handbook of Management Education—1983**

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In trials conducted at Kattuthottam the highest production of 14065 kg of grain/ha was obtained in all the three seasons put together in rice (TKM 9-6889 kg/ha) rice (IR 20-4537 kg/ha) and ground nut (TMV7-2639 kg/ha) rotations with a net profit of Rs. 28,055.

Science & Technology

Viruses suspected in some cancers

Two viruses believed to be the cause of some cancers in sheep and cattle have been identified by veterinary scientists at the University of Queensland.

Identification of the cattle virus was made last year and that of the sheep virus in recent months. The viruses belong to the papilloma group and were found in the wart-like growth often seen as a precursor to some cancers.

Professor John Francis, professor of veterinary preventive medicine in the university's Department of Veterinary Pathology and Public Health, said the recognition of the viruses would contribute greatly to the understanding of how some cancers developed.

"It may also lead to the development of vaccines against certain forms of cancer in sheep and cattle, and even vaccines or immunotherapy against similar types of cancer in man" he said. But it would probably be several years before any findings from current research could be widely applied.

The researchers and trying to find the missing link between the viral cause of some lesions and the later development of cancers. They were working on the papilloma viruses which they believe caused various forms of cancers, including eye and other cancers in cattle, and ear, head and vulval cancers in sheep.

It has been found that phenol-saline extract taken from eye-cancer tissue in cattle prompted recovery in a considerable number of cases when injected into other affected cattle. Trials were underway to determine whether the material effective in immunotherapy could also be used successfully as a vaccine to prevent tumour development. At present the researchers were unable to make enough vaccine to make it commercially available.

[*Courtesy* : Australian Science Newsletter.]

India made dialyser

The Central Scientific Instruments Organisation (CSIO), Chandigarh, a CSIR laboratory, has developed a haemodialysis machine.

The machine, which has been developed for the first time in India, has been successfully tried at the post-Graduate Institute of Medical Education & Research, Chandigarh. It has been tested both under simulated conditions and on human patients.

The machine stores concentrated dialysate in a container which is mixed with filtered tap water. The machine is not only designed to ensure correct concentration within a margin of one per cent, but also has a built-in system to maintain and monitor the desired temperature of the dialysate and provide for adjustment of the flow rate. The dialyser system functions only when all the necessary requirements are complied with. Otherwise, the purifying solution travels through a safety 'by-pass'. There is also a provision for detecting the presence of any blood lead in exhaust fluid.

The machine can also be used for home dialysis by simplifying some of its operations.

Classified Advertisements

(*Contd. from page 632*)

3. Lecturers : Ancient Indian History Cul. and Archaeology (temporary but *likely to be made permanent*), English Sanskrit Chemistry/Physical/Philosophy.

Grade : Rs. 700-40-1100-50-1600.

Qualifications

(i) a candidate holding a Ph.D. degree should possess at least a second class Master's degree: or

(ii) a candidate without a Ph.D. degree should possess a high second class Master's degree with second class Bachelor's degree; or

(iii) a candidate not possessing Ph.D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

4. Registrar

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Post graduate degree with 5 years' administrative experience preferable in a University or College. Those who possess a doctorate degree will be preferred to.

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(b) Proficiency in Yoga.

6. P.A.

Grade : Rs. 300-8-340-10-440-12-500,

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Note

(i) Female candidates and those who have applied earlier in response to previous advertisements need not apply.

(ii) Qualifications may be relaxed by the Selection Commitee for experienced persons.

(iii) Higher start may be given to the deserving candidates.

(iv) Teachers will be expected to do Research and Extension Work.

(v) Applicants should mention names of two referees not related to them.

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Applications are invited on the prescribed form for the following post on or before **October 20** on the following Address: Registrar, Post Grauate Complex, Dakshina Bharat Hindi Prachar Sabha, Khairatabad, Hyderabad-500 004

Lecturer in Hindi : One post for Madras Post Graduate Vibhag, Madras.

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REGISTRAR

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Sociology

1. Gupta, Dinesh Kumar. Socio-economic conditions of urban scheduled caste women in Indore Division. University of Indore. Dr. V.C. Tongia, Head, Department of Sociology, P.M-B. Gujarati Arts & Law College, Indore.

2. Sachdeva, Rakha. Socialization of the child in an industrial society with special reference to slum area in Indore. University of Indore. Dr. K.P. Pothan, Indore Christian College, Indore.

Economics

1. *Gurmit Singh. Role of development finance through* World Bank group and Asian Development Bank with special reference to Indian and ASEAN economies. Panjab University. Dr. V.S. Mahajan, Reader, Department of Economics, Panjab University, Chandigarh.

Commerce

1. Agrawal, Ram Kikar. National Textile Corporation: An evaluation of its activities and achievements with special reference to Madhya Pradesh. University of Saugar. Prof. R.P. Rai.

2. Gurange, Govind Parosramjee. The M.P. State Marketing Federation: An evaluation of its working and achievement. University of Saugar. Dr. A.S. Gangele.

3. Singh, Buddhi Bali. Municipal Corporation: A case study of the Varanasi Municipal Corporation in Uttar Pradesh. University of Saugar. Prof. R.P. Rai.

4. Surana, Varsha. Madhya Pradesh mein soyabean tel udyog. University of Indore. Dr. K.G. Johari, Prof., Department of Commerce, Govt. Arts & Commerce College, Indore.

HUMANITIES

Literature

English

1. Awasthi, Girija. The theatre of cruelty and Edward Albee's plays. Himachal Pradesh University. Dr. B.N. Pathania, Department of English, Himachal Pradesh University, Simla.

2. Chadha, Ramesh. Ruth Prawar Jhabvala's women: A study in relationships. Himachal Pradesh University. Dr. A.K. Biswas, Department of English, Himachal Pradesh University, Simla.

3. Choahan, Ravender. Metaphysical destiny of man in the poetry of T.S. Eliot. Himachal Pradesh University. Dr. Atma Ram Sharma, Department of English, Himachal Pradesh University, Simla.

4. Sharma, Lalit Mohan. Quest for self in the American novel from Mart Twain to Bernard Malamud. Himachal Pradesh University. Dr. K.N. Awasthi, Department of English, Himachal Pradesh University, Simla.

Hindi

1. Agrawal, Madhuri. Sursagar mein prayukta patra namon tatha sthan namon ka bhasha vaigyanik adhyayan. Meerut University.

2. Asha. Mahakavi Dev ka acharyatva. Meerut University.

3. Avinash Kumar. Brahmavarta kshetra ke lok-geet : Sankalan sampadan evam mulyankan. Meerut University.

4. Bharadwaj Sushma. Shleshmoolak mahakavya kee drishti se 'Ravanarjuniyam' mahakavya ka sahityik adhyayan. Meerut University.

5. Bhatnagar, Meenu. Saket kee bhasha mein pratyaya prayog. Meerut University.

6. Chandra Kanta. Shabda-shakti siddhanta ke adhar par saptak chatushtaya kee kavitaon ka anusheelan. Meerut University.

7. Darshana Devi. Prasad sahitya mein patra-nam tatha sthan namon ka bhasha-vaigyanik adhyayan. Meerut University.

8. Deep Shikha. Natya rachna Kaushal kee drishti se bhasa ke mahabharat par ashrit natakon aur Bhatt Narayana ke venisamhar natak ka tulnatmak adhyayan. Meerut University.

9. Dixit, Mool Chandra. Manjhan krit Madhumalati ka roopmik adhyayan. Meerut University.

10. Dixit, Vinod Kumar. Maulana Daudkrit Chandayan kee bhasha mein pratyaya vidhana. Meerut University.

11. Dublish Aruna. Swatantrayottar Hindi tatha Bangla kavyon mein neeti tatva. *D Litt.* Meerut University.

12. Gaur, Ved Prakash. Ajyey sahitya mein dvand. Meerut University.

13. Gavendra Singh. Adhunik Hindi Prabandh kavyon mein neeti tatva. *D.Litt.* Meerut University.

14. Gupta, Aruna. Pramukh upanishadon mein jeev ka mahatva. Meerut University.

15. Gupta, Shashi. Pramukh dharma sutron ka samajik evam rajnaitik parisheelan. Meerut University.

16. Gupta, Sunita. Sanskrit prateek natak : Ek alochnatmak adhyayan. Meerut University.

17. Gupta, Usha. Maithili Sharan Gupt ke nari patra. Meerut University.

18. Gupta, Yogendri. Valmiki Ramayana mein neeti tatva. Meerut University.

19. Indra Pal Singh. Bhartendu purva khari boli kavita. Meerut University.

20. Jain, Indra. Hindi khari boli mein linga nirdharan. Meerut University.

21. Jain, Manju. Nirgun sant kavya kee samtavadi chetna. Meerut University.

22. Kansal, Suman. Shivpuran aur Vayupuran ka tulnatmak adhyayan. Meerut University.

23. Kaptan Singh. Sanskrit kavya shastra mein kavya doshon ka sameekshatmak evam tulnatmak adhyayan. Meerut University.

24. Kaul, 'Hima', Guddi. Kavi Kshem Chandra virachit Ramayana manjari ka sameekshatmak adhyayan. Meerut University.

25. Kaushal, Shyam Bihari. Hindi nava geet: Vikasatmak adhyayan. Meerut University.

26. Khuvalkar, Umakant. Hindi 'Akavita' mein samvedna aur shilpa. Meerut University.

27. Madhu Bala. Bhavishya Puran: Ek vivechnatmak ahhyayan. Meerut University.

28. Mahesh Chandra. Swatantrayottar Hindi Ram kavya mein samaj. Meerut University.

29. *Maheshwari, Durgesh. Sanskrit natika uproopak sahitya* ka sahityik adhyayan. Meerut University.

30. Mishra, Amrendra Narayan. Phanishwar Nath Renu ke upanyason mein rajnaitik pariprekshaya. Meerut University.

31. Mukesh Kumar. Mahadevi ke kavya mein roop vidhan. Meerut University.

32. Narendra Pal Singh. Ritibaddha kaviyon kee bhasha ka shaili vaigyanik adhyayan. Meerut University.

33. Nirmala Devi. Kamayani mein bimb yojna. Meerut University.

34. Niyoraj Kumar. Maithili Sharan Gupt ke kavya mein dvand. Meerut University.

35. Om Kumar. Uttar Ramcharitam aur kundmala ka tulnatmak adhyayan. Meerut University.

36. Omana, S. A comparative study of modern trends in the novels of Hindi and Malayalam from 1970 to 1980. University

of Kerala. Dr. Vellayani Arjunan, Director, State Institute of Encyclopaedic Publications, Trivandrum.

37. Randeva, Satpal. Kaviraj Shrinivasacharya prageet suryaprabha evam chandramahipati upanyson ka sahityik adhyayan. Meerut University.

38. Rohtagi, Mithlesh. Swatantrayottar Hindi kahani chetna aur shilp. *D.Litt.* Meerut University.

39. Saraswati. Gun Bhadra krit Uttar puran ka sameekshatmak adhyayan. Meerut University.

40. Sarita. Sanskrit vyakaran mein nam, ev, tatha aev nipat. Meerut University.

41. Saxena, Santosh. Sanskrit sahitya ke pramukh natakon mein dampatya chitran. Meerut University.

42. Saxena, Shanti. Ramcharitmanas mein mitthak tatva. *D.Litt.* Meerut University.

43. Seema. Vedic gadya sahitya: Ek aitihasik vivechan. Meerut University.

44. Sharma, Archana. Vakrokti siddhanta ke adhar par nai *kavita* ka adhyayan. Meerut University.

45. Sharma, Arvind Kumar. Swatantrayottar prabandh kavyon mein rashtriya chetna. Meerut University.

46. Sharma, Krishna Kumar. Somyogo ka adhyayan : Atiratra aur uske karmakanda ke vishesh sandarbh mein. Meerut University.

47. Sharma, Neena Kumari. Dr. Rangey Raghav ke upanyason kee vaicharik bhumika. Meerut University.

48. Sharma, Mithlesh Kumari. Sanskrit akhyan sahitya mein prayukta kavirudiyon ka adhyayan. Meerut University.

49. Sharma, Nirmala. 'Kamayani' evam 'Prabhat' krit-Ritambhara: Tulnatmak adhyayan. Meerut University.

50. Sharma, Om Prakash. Adhunik Hindi aur Urdu ke geeti kavyon ka tulnatmak adhyayan 1920-1950. Meerut University.

51. Sharma, Ram Karan. Kiratarjuniya mahakavya ka vyakaran shastriya adhyayan. Meerut University.

52. Sharma, Rishi Kumar. Vaiyakaran siddhanta laghu manjusha ka samikshatmak adhyayan. Meerut University.

53. Sharma, Savitri. Yashpal ke upanyason mein patraparikalpna. Meerut University.

54. Sharma, Sneh Lata. Swapna Vasavdattam evam Tapasvatsaraj ka tulnatmak adhyayan. Meerut University.

55. Sharma, Yogendra Dutt. Sathottar Hindi geeti kavya mein samvedna aur shilpa. Meerut University.

56. Singh, Smar Pal. Lokayatan mein lok tatva. Meerut University.

57. Singh, Shripal. Amrit Lal Nagar ke upanyason mein jivan mulya. Meerut, University.

58. Som Dev. Vedic vangmaya mein punarjanm: Ek adhyayan. Meerut University.

59. Subodh Rani. Hazari Prasad Dwivedi ke upanyason mein itihas - bodh. Meerut University.

60. Sudarshan Kumar. Harioudh ke kavya mein udatta tatva. Meerut University.

61. Sumitra Devi. Jayasi kee alankar yojna. Meerut University.

62. Sushma Rani. Adhunik Krishna kavya mein nari bhavana. Meerut University.

63. Tandon, Madhu Bala. Nirala ke kavya mein udatta tatva. Meerut University.

64. Tiwari, Swatantra Nath. Maithili Sharan Gupt ke kavya mein mitthak tatva. Meerut University.

65. Tripathi, Rampadartha. Kedarnath Mishra Prabhat ke kavya mein jivan darshan. Meerut University.

66. Tripathi Shesh Narayan. Sankalpa supryodaya ka sameekshatmak adhyayan. Meerut University.

67. Verma Sunita. Bharatiya vaishnav, shaiva shakta sampradayeshu atamtatva sameekshanam. Meerut University.

68. Yadav, Vinita. Bihari kee alankara yojana. Meerut University.

69. Yatri, Seva Ram. Kathakar Upendranath Ashk kee mansikta aur unki kala. Meerut University.

Marathi

1. Dingre, Shobhana Vithal. Shridhar's minor poetry : A critical study. Shivaji University. Dr. V.P. Ginde, Pandharpur College, Pandharpur.

2. Tukdeo, Mohini Chandrakant. Vaivarikala vani Marathi karyavadye swarup, 1915-45. Shivaji University. Dr. G.M. Pawar, Head, Department of Marathi, Shivaji University, Kolhapur.

Fine Arts

1. Malik, Om Prakash. Vocal music. *D.Mus.* Banaras, Hindu University. Dr. Chittaranjan Jyotishi. Department of Vocal Music, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Ghosh, Nirodranjan. Construction of criminal motive appreciation test for identifying the possibilities of a suspect's involvement with criminal behaviour. University of Calcutta.

2. Shukla, Aradhana. Development of representational competence in children. University of Gorakhpur.

3. Srivastava, Guru Pyari. Motivational patterns of isolates and stars. University of Gorakhpur.

4. Srivastava, Manju. Time perspective, conceptual tempo and preference for delayed reward: A study. University of Gorakhpur.

Sociology

1. Jayarami Reddy, P. Social and psychological factors influencing the fertility behaviour of the non-slum and slum dwellers of Hyderabad city. Sri Venkateswara University.

2. Joseph, Mariamma. An enquiry into the integration of the various strands in Syrian catholic marriage customs in Kerala. University of Kerala.

3. Seth, Vishva Nath. Sociological study of Harijan protest: A comparative study of profiles of two villages having 'protest' and lack of protest in the district of Banda in U.P. Punjab University.

4. Srivastava, Prem Chand. The process of modernization among educated rural youth with special reference to the youths of C.D. Block Kauriya, Gorakhpur District. University of Gorakhpur.

Social Anthropology

1. Chakraborti, Satyabrata. Socio-cultural context of agricultural farming : A case study from a West Bengal village. University of Calcutta.

Political Science

1. Dash, Sribanta. Pressure group engineering political instability: A study of kenduleaves business in Orissa. Sambalpur University.

2. Dilip Chandra. Islamic political parties in Indonesian politics, December, 1949 to August, 1960. Jawaharlal Nehru University.

3. Dixit, Ramesh Kumar. South East Asia in Indian policy, 1966-1977: Problems of relationship with a neighbouring region. Jawaharlal Nehru University.

4. Mohammed Zamen Mohamand. Afghanistan and the United Nations, 1946-1966: A political study. Jawaharlal Nehru University.

Economics

1. Bapna, Ashok Economics of lifting ground water: A case study of alternative techniques in Rajasthan. University of Rajasthan.

2. Jose, A.V. Agricultural labour in Kerala: An historical cum statistical analysis. University of Kerala.

3. Saha, Saktinath. Factor intensity in engineering exports. University of Calcutta.

4. Satya Sundaram, Immaneni. Towards anti-poverty rural development in India : Basic issues. Andhra University.

5. Subrahmanyam, Sista. Levels of poverty and unemployment and perspective of development: A case study of East Godavari District. Andhra University.

Law

1 Tiwari, Yogendra Kumar. Labour law and emerging patterns of industrial democracy in India. University of Rajasthan.

Education

1. Adeshra, Jayanti lal Nagardas. Developing instructional skills in teachers using auto-instructional material and using micro-teaching approach under simulated conditions and real situations : A comparative study. M.S. University of Baroda.

2. Goel, Dev Raj. A study of school broadcasts in India. M.S. University of Baroda.

3. Jain, Kailash Chand. The educational philosophy of Lord Mahavira with relevance to Modern India. Panjab University.

4. Patel, Motibhai Manorbhai. Developing and trying out the scheme of improving the expression of thought in mother-tongue for Std. VIII. Sardar Patel University.

5. Venkateswara Rao, R. Standardization of a test of literary creativity in Telugu for students of secondary schools. Osmania University.

Commerce

1. Ramana Rao, Tummala Venkata. Industrial relations in Andhra Pradesh State Electricity Board. Andhra University.

2. Tripathi, Radhe Shyam. Financial organisation and management in Indian railways. University of Gorakhpur.

HUMANITIES

Philosophy

1. Chaudhuri, Aditi. Man and society in Erich Fromm. University of Calcutta.

2. Ingalalli, Rachappa Irappa. Sabda pramana: An epistemological analysis. Karnatak University.

3. Singh, Shyama Nand. Pakshta ka swarup. University of Bihar.

Language & Literature

English

1. Walia, Amrit. An evaluative study of English at the secondary level in Rajasthan. University of Rajasthan.

Sanskrit

1. Mishra, Ramesh Chandra. Vrindaranyak upnisad: Ek samalochnatmak adhyayan. University of Bihar.

2. Pandey, Ravindra Nath. Vishnu puran mein dharam nirupam. University of Gorakhpur.

3. Ramamurthy, K. Appayya Diksita's citramimamsa: A study. Sri Venkateswara University.

Prakrit

1. Pathak, Raj Kumar. Basudevhindi: Ek alochnatmak adhyayan. University of Bihar.

Hindi

1. Hari Rao, U. Kabir ke darshanik vichar tatha rahasyavad. Bangalore University.

2. Lakshmi Devi, R. Relating in the social novels of Kannada and Hindi: A comparative study. Bangalore University.

3. Ramulu, B. Jaya. Satthotar Hindi-Telugu upanyason mein nagarik jeevan. Sri Venkateswara University.

4. Sharma, Urmila Devi. Samkaleen dirgh kavita: Ek mulyankan. University of Rajasthan.

5. Shivappa, Mummigatti Sumangala. Prose literature of Bhagavati Prasad Vajapayee. Karnatak University.

6. Vimala, M. Problems dealt in the novels of Premchand. Bangalore University.

Bengali

1. Bhattacharya, Gayatri. Social perspective and poetic image of Bangali poetry during the period between the two world wars: A study in Lakmdranath. University of North Bengal.

2. Chattopadhyay, Bimalbhushan. Application and evaluation of the theory of tragedy in the Bengali sama upto Rabindranath. University of North Bengal.

3. Mukhopadhyay, Nisit Kumar. Bangla sahitya-o-Bangla chalachitra: Parasparik pravab. University of Calcutta.

4. Sarma, Parbhat Kumar. Rabindranath ebong ingriji bhasa-o-sahitya. University of Calcutta.

Arabic

1. Jameelunnisa, Javaria. Critical edition of Gaharibul Hadith by Al-Khattabi. Osmania University.

Tamil

1. Jagadeesan, A. Yoga in Tamil literature. Sri Venkateswara University.

2. Kulathuran, G. Folk influence in Tamil literature with special reference to Pallu, Kuravanchi and Nondi Natakam. University of Kerala.

3. Philip, J. Janakiraman:, As a novelist. University of Kerala.

Telugu

1. Jayalakshmi, C. A comparative study of Viswanatha's Srimad Ramayana Kalpa Vrikshamu with Kuvempu's Sri Ramayana Darshanam. Bangalore University.

2. Vani, K. Alankaras in the padakavita of Tallapaka Annamacharya: A study. Sri Venkateswara University.

Geography

1. Ravindra Reddy, K. The swarnamushi Basin: A geographical study of hydrology, climate, soils and cropping pattern. Sri Venkateswara University.

2. Tyagi, Nutan. A geographical study of hill resorts of U.P. Himalaya. University of Gorakhpur.

History

1. Chakraborti, Ramakanta. Vaisnavism in Bengal: 1486-1900. *D.Litt.* University of Calcutta.

2. Jadhav, Rajani Bapusaheb. Decorative motifs of mosques of Gujarat from 14th to 16th century A.D. M.S. University of Baroda.

3. Joshi, Shriniwas Krishnaji. Defence architecture in the ancient North Karnataka. Karnatak University.

4. Khan, M.A.S. Prithviraj III and his times. University of Jabalpur.

5. Mishra, Shriprakash Narain. Poorvi Uttar Pradesh ka pracheen bhoogolik itihas. University of Gorakhpur.

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A list of select articles culled from periodicals received in AIU Library during September, 1982

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Annas, Julis. "Utilitarianism and double standards: A discussions of R.M. Eare's moral thinking". *Oxford Review of Education* 8 (2); 1982; 199-210.

Collis, K.G. "Ideological influences in higher education". *Studies in Higher Education* 7 (1); 82; 13-19.

Kramer, Martin. "In defense of distribution". *Change* 13 (8); Nov-Dec 81: 26-31.

Pritam Singh. "An investigation into the empirical validity of Bloom's taxonomy of educational objectives". *Indian Educational Review* 17 (2); Apr 82:86-92.

Subba Rao, D. "The community college in an Indian setting". *University News* 20 (17); 1 Sept 82: 550-2.

Willie, Charles V. "Educating students who are good enough: Is excellence an excuse to exclude?" *Change* 14 (2); Mar 82: 16-20.

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Sandhu, T.S. "A factorial study of adolescent thought using Piaget type tasks". *Indian Educational Review* 17 (2); Apr 82:93-6.

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Bhalerao, C.N. "Universities and their role in development". *University News* 20 (16); 15 Aug 82: 518-9

Callahan, Daniel. "Should there be an academic code of ethics?". *Journal of Higher Education* (Ohio) *53 (3)*; May-June 82: 335-44.

Clignet, Remi. "The double natural history of educational interactions: The implications for educational reforms". *Comparative Education Review* 25 (3); Oct 81: 330-52

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Adiseshiah, Malcolm. "Remoulding Indian Higher Education". *New Frontiers in Education* 12 (2); Apr-June 82: 14-20.

Williams, Gareth. "The main policy issues facing higher education in the 1980s and 1990s". *Education Policy Bulletin* 9 (1); Spring 81: 13-38.

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Swamy, C. K. "Implementation of autonomy at St. Joseph's College". *New Frontiers in Education* 12 (2) ; Apr-June 82: 61-7.

Williams, Bruce. "Survival and revival in Higher Education". *Education Policy Bulletin* 9 (2); Autumn 81: 137-48.

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CURRICULUM

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MacIntosh, H.G. "Examination and the curriculum". *Education Policy Bulletin* 9 (2); Autumn 81 : 173-7.

TEACHING

Bhagir, Sushma. "Some thoughts on in-service education of educators". *New Frontiers in Education* 12 (2); Apr-June 82: 68-71.

Mukhopadhyay, S. and Saxena, S. "The correlates of change proniness of Secondary School teachers". *Indian Educational Review* 17 (2); Apr 82: 123-8.

EVALUATION

Mathias, Haydn and Rutherford, Desmond. "Lecturer's as evaluators: The Birmingham experience". *Studies in Higher Education* 7 (1); 82: 47-56.

Rao, V.S.S.M. "Is semester system suited to us?" *University News* 20 (17); Sept 82: 549-552.

Tarlok Singh. "Testing of hypothesis regarding suitability of marks adjustment models". *Indian Educational Review* 17 (2) ; Apr 82: 47-57.

Verma, Lokesh K. and Gaya Toshar Kanta. "Internal assessment in relation to external marks of BA (Hons.) Students of Utkal University: A statistical study". *Indian Educational Review* 17 (2); Apr 82: 27-34.

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Cavalier, Anne and Slaughter, Sheila. "Autonomy versus affirmative action: what price social justice?" *Higher Education* 11 (4); July 82: 381-95.

Padmanabhan, C.B. "Principles and techniques of Indian educational finance". *New Frontiers in Education* 12 (2); Apr - June 82 : 36-41.

Psacharopoulos, George. "The economics of Higher Education in developing countries". *Comparative Education Review* 26 (2); June 82: 139-59.

Sica, Alan and Prechel, Harland. "National political-economic dependency in the global economy and educational development". *Comparative Education Review* 25 (3); Oct 81: 384-402.

Tilak, Jandhyala B.G. "Wastage in Education in India : A case study of Andhra Pradesh". *Indian Educational Review* 17 (2); Apr 82: 58-85.

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Ashok Kumar. "An experimental study of the relative effectiveness of three methods of instruction: Exposition method, Programmed learning method and multimedia method in science education". *Indian Educational Review* 17 (2); Apr 82: 104-7.

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Turmeau, W.A. "Engineering degree curricula for the future". *Higher Education* 11 (4); July 82: 397-403.

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COMPARATIVE EDUCATION AND COUNTRY STUDIES

Hooja, G.B.K. "What ails the University system-Examination". *University News* 20 (17); Sept 82: 547-8.

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CLASSIFIED ADVERTISEMENTS

GAUHATI UNIVERSITY
GAUHATI

Advertisement No. 8 of 1982

Applications are invited for the following posts :-

1. **Professor of Economics**—One post (Permanent) Specialisation—Open.
2. **Reader in Library Science**—One post (Permanent)
3. **Reader in Economics**—One post (Permanent) Specialisation—Open.
4. **Reader in Physics**— One post (Permanent) **Specialisation:** Specialisation in any of the following branches of study.

X-ray Crystallography or Solid State Physics or Nuclear Physics and Cosmic Radiation or Radio-Physics and Electronics or Spectroscopy or Theoretical Physics (Theoretical Astrophysics or particle physics).

5. **Lecturer in Physics**—One post (Permanent) **Specialisation :** Solid State Physics.
6. **Lecturer in Economics**—One post (Permanent) Specialisation—Open.
7. **Lecturer in Chemistry**—One post (Temporary) Specialisation—Organic Chemistry.
8. **Lecturer in Chemistry**—One post (Permanent) The candidate should have specialised in theoretical Chemistry or *he should be an M.Sc. in Physics* capable of teaching Quantum Mechanics and associated topics at the M.Sc. level and should have had Chemistry at the B.Sc. level.

Those who have already applied for the post (Serial No. 8) as per Advertisement No. 4 of 1982 need not apply again.

Scales of Pay

Professor—Rs. 1500-60-1800-100-2000-125/2-2500/-.

Reader—Rs. 1200-50-1300-60-1900/-

Lecturer—Rs. 700-40-1100-50-1600/-

All posts carry usual allowances admissible *under the University rules in* force from time to time.

In case where specialisation has not been mentioned against a post candidates should state their areas of specialisation at the Master's and Doctor's degree levels.

Essential Qualifications

Professor: An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at Doctoral level.

Or

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Reader

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Lecturer

(a) A Doctor's degree or research work of an equally high standard, and (b) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University. Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctors degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory/Organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will *not be able to earn future increments* until he fulfils these requirements.

Applications in plain paper in six copies giving full bio-data including (1) Name in full (in block letters), (2) Father's name, (3) Date of birth by Christian era, (4) Permanent residence and address (in full), (b) Present address (in full), (5) Present occupation if any and name of employer, *(6) Present* salary drawn (if any), (7) Detailed academic career with mark-sheets and subjects studied (including Honours) in degree and post graduate courses from Matriculation/Higher Secondary/High School Leaving Certificate Examination onwards and copies/reprints of research contributions, (8) Name and address of *two referees not related to candidate* together with an application fee of **Rs. 10.00 (Rupees ten). (Rs. 7.50** in case of Scheduled Caste/Scheduled Tribe candidates) by CROSSED INDIAN POSTAL ORDER drawn in favour of the Registrar, Gauhati University payable at the Gauhati-781014 post office should be sent in an inner sealed cover superscribed application for the post of (Name of post applied for) Advt. No. 8 of 1982 enclosed in an outer cover addressed to the Registrar, Gauhati University, Gauhati-781014 to reach him not later than **16-10-82**.

AIU Library.

The number of this advertisement and name of the post applied for must be referred to in the application.

Persons in employment should apply through proper channel or with a no objection certificate from the present employer.

The University has accepted the principle of reservation of posts for Scheduled Tribe and Scheduled Caste candidate according to the norms of the State Govt. Candidates should submit necessary *certificate from the Deputy* Commissioner/District Magistrate if they belong to Scheduled Caste, or Scheduled Tribe.

Candidates will be required to appear at an interview if and when called for.

Canvassing directly or indirectly will be a disqualification.

M. C. Bhuyan
REGISTRAR

GURUKULA KANGRI VISHWAVIDYALAYA
HARDWAR

Applications in duplicate on plain paper with attested copies of testimonials, certificates, etc. are invited for the *following posts* so as to reach the undersigned by name with postal order payable to Registrar. Gurukula Kangri Vishwavidyalaya, value **Rs. 10**/- upto **15-12-82** for post (1-5) and **Rs. 5**/- for other posts upto **30.11.82**.

1. **Professors:** Vedic Studies/Sanskrit/ Ancient Indian History, Culture and Arch. Philosophy:

Grade : **Rs.** 1500-60-1800-100-2000-125/2-2500.

Qualifications

An eminent Scholar with published work of high standard. Ten years' experience of teaching and/or experience of guiding research at doctoral level. For the post of Professor A.I.H. Culture and Archaeology, preference will be *given to those who are M.A. in History* also.

OR

An outstanding Scholar with established reputation who has made significant contribution to knowledge.

2. **Reader: Philosophy**

Grade: 1200-50-1600-60-1900.

Qualifications

(a) First or high second class Master's degree in the subject concerned.

(b) Good Academic record with a doctoral degree or standard published work. *Evidence of being* actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

(c) About five years' teaching experience and/or guiding research work.

(Contd. on Page 627)

ALIGARH MUSLIM UNIVERSITY
ALIGARH

Advertisement No. 8/82-83

Applications, on the prescribed form, are invited for the following posts: FACULTY OF ARTS, SCIENCE, SOCIAL SCIENCES, COMMERCE, LAW AND WOMEN'S COLLEGE.

Professors

Scale of Pay: Rs. 1500-60-1800- 100-2000-125/2-2500 plus allowances.

1. Professor of Commerce, Department of Commerce (Permanent).

2. Professor of Botany, Department of Botany (Permanent).

Qualifications

I—Essential

(a) A first or high second class Master's degree in the subject concerned of an Indian University or an equivalent foreign qualification;

(b) A research degree of a Doctorate standard or published work of a high standard; and

(c) At least 10 years' experience of teaching post-graduate classes and guiding research.

Readers

Scale of Pay: Rs. 1200-50-1300-60-1900 plus allowances.

3. Reader in English, Women's College (Permanent).

4. Reader in Commerce, Department of Commerce (Temporary).

5. Reader in Law (Mercantile Law), Deptt. of Law (Permanent).

6. Reader in Political Science, Women's College (Temporary).

7. Reader in Education, Department of Education (Permanent).

8. Reader in Geology (Hydro-Geology), Deptt. of Geology (Permanent).

9. Reader in Chemistry (Two posts), Department of Chemistry (One permanent and one temporary but likely to become permanent).

Qualifications

I—Essential

(a) A first or high second class Master's degree of an Indian University or an equivalent foreign *qualification*;

(b) A research degree of a Doctorate standard or published work of a high standard; and

(c) At least five years' experience of teaching post-graduate classes and some experience of guiding research.

II—Desirable

FOR POST No. 7—READER IN EDUCATION.

Should have experience of guiding research at M.Ed. and Ph.D. level, and Master's degree in any one of the school subjects.

FOR POST No. 8—READER IN GEOLOGY (HYDRO GEOLOGY)

Should possess considerable experience in the Geological investigation of ground water.

FOR POST NO. 9—READERS IN CHEMISTRY.

Applicants for the post of Reader in Chemistry may have Master's degree in Analytical Chemistry/Bio Chemistry/ *Inorganic Chemistry/Organic Chemistry* or Physical Chemistry.

Lecturers

Scale of Pay: Rs. 700-40-1100-50-1600 plus allowances.

10. Lecturers in English, Department of English (Three permanent and one leave vacancy).

11. Lecturers in Commerce, Department of Commerce (Four posts—One permanent and three temporary).

12. Lecturers in Pali, Department of Sanskrit (Temporary but likely to become permanent)

13. Lecturer in Education, Department of Education (Permanent)

14. Lecturer in History, Women's College (Temporary but likely to become permanent).

15. Lecturer in History (Ancient Indian History & Archaeology), Department of History (Temporary but likely to become permanent).

16. Lecturer in History (History of West Asia), Department of History (Temporary but likely to become permanent).

Qualifications

I—Essential: (a) A Doctor's degree or research work of an equally high standard; and

(b) Consistently good academic record with first or high second class (B *in the seven point scale*) Master's degree in the relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing *inter disciplinary programmes* the degrees in (a) and (b) above may be in relevant subject.

Provided that if the Selection Committee *is of the view that the research work* of a candidate as evident either from his thesis or from his published work is of very high standard it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality), may be appointed provided he has done research work for at least two years or has practical *experience in* a research Laboratory/Organisation on the *condition that he will have to obtain* a Doctor's degree or given evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

NOTE

(FOR POST NO. 15—LECTURER IN ANCIENT HISTORY AND ARCHAEOLOGY).

Specialization in Ancient Indian History and Archaeology and capacity *to* use original source is essential.

(FOR POST NO. 16—LECTURER IN HISTORY (WEST ASIA)

Special reference to the Medieval period and capacity to use original source material in Arabic is essential.

II-Desirable

FOR POST NO. 12 LECTURER IN PALI

(a) Capacity of teaching through English as well as Hindi Medium.

(b) Considerable knowledge of Sanskrit and its literature.

FOR POST NO. 13—LECTURER IN EDUCATION

(a) A few years experience of teaching *in a training college* Department of Education.

(b) Master's degree in any subject of Social Sciences or Humanities.

FOR POSTS NOS. 14, 15 AND 16—LECTURER IN HISTORY.

Some experience of teaching *and/or* research.

FACULTY OF THEOLOGY
LECTURER

Scale of Pay: Rs. 700-40-1100-50-1600 plus allowances.

17. LECTURER IN SUNNI THEOLOGY, DEPARTMENT OF SUNNI THEOLOGY (PERMANENT).

Qualifications

I—Essential

Consistently good academic record with first or good second class (B in the seven point scale) Master's degree in Sunni Theology or in Arabic or Islamic Studies or Fazil of Dars-e-Nizami of any recognised Madrasah with adequate knowledge of English or a foreign qualification equivalent to the Master's degree.

II - Desirable

(1) Ph.D. degree or published work of high standard.

(2) Some teaching experience in a University or a Madrasah of repute.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class Railway fare only.

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees) on payment of Rs. 2/- in Cash (to be deposited in the Cash *Section Finance Office)* or through an Indian Postal Order payable to *Finance Officer*. AMU either personally or by sending a self-addressed envelope of 23 x 10 Cm. LAST DATE FOR RECEIPT OF APPLICATIONS IS 25-10-82. Incomplete applications and those received late may not be considered.

Mahmood Ali
REGISTRAR

SOUTH GUJARAT UNIVERSITY

UNIVERSITY CAMPUS

Udhna-Magdalla Road
Post Box No. 49, Surat-395007

Applications are invited in the prescribed form (in eight copies) for the following teaching posts in the Post-Graduate Department of the University :

Sr. Name of the Departments and the No. number of Posts

1. **RURAL STUDIES**

   Professor in Rural Studies (One Post)

   Outstanding contribution in the field of Rural Development, Planning and Administration; Techniques of Area Planning and Integrated Rural Development; Rural Project Formulation, Management and Evaluation/Rural Human Resource Development.

2. **CHEMISTRY**

   Professor in Chemistry (one post) Qualified in Physical/Organic/Inorganic Chemistry with deep research interest in Dye-Stuff Chemistry and Chemistry of Drugs.

   Reader in Chemistry (One Post)

3. **LINGUISTICS**

   Lecturer in Linguistics (Two Posts)

   Lecturer should have the following respective requirements :

   (1) should be able to work on Gujarati and one or more other Indian Languages. Ability to work on a Language or Languages of a family other than Indo-Aryan is desirable,

   (2) should be able to work on Hindi and some other Languages of North-West India. Knowledge of a Language or Languages of a family other than Indo-Aryan is desirable.

4. **BIO-SCIENCES**

   Reader in Bio-Sciences (Two Posts)

   (i) Persons holding Ph.D. Degree with B.Sc. and M.Sc. Microbiology. Presently engaged in Post-Graduate Teaching of Microbiology will be preferred.

   (ii) M.Sc. and Ph.D. with Plan Science, with research work in Taxonomy, Floristics, Forest & Ethno Botany or Aquatic Biology. An Inter-disciplinary Research and Teaching Experience is desirable.

   (iii) **Lecturer** in Bio-Sciences (Microbiology) (One post) B.Sc. Microbiology and with inter-disciplinary training at M.Sc. and Ph.D., level and research experience in Microbial metabolism, some experience in tracer techniques is desirable.

5. **BUSINESS AND INDUSTRIAL MANAGEMENT**

   Lecturer (Two posts)

   Lecturers are required in following areas :

   (i) Production Management and Quantitative Techniques

   (ii) Personnel Management and Organisational Behaviour.

Pay Scales are as under

(1) PROFESSOR
Rs. 1500-60-1800-100-2000-125/2-2500.

(2) READER
Rs. 1200-50-1300-60-1600-Assessment-60-1900.

(3) LECTURER
Rs. 700-40-1100-50-1300-Assessment-50-1600.

In addition to pay the teachers of the University Departments are entitled to draw Dearness allowance, House Rent Allowance and other benefits like contributory Provident Fund and Gratuity as admissible under rules from time to time.

If the Selection Committee does not find a suitable candidate for appointment as a Professor in the Department of Chemistry, the appointment to the post of a Reader may be considered from amongst the candidates present, if found suitable.

According to the policy of reservation adopted by the University, all posts of Lecturers advertised are reserved for Scheduled Caste/Scheduled Tribe and backward class candidates. Candidates belonging to these classes should clearly indicate in their applications the caste to which they belong and attach necessary certificates alongwith their applications. If suitable candidates belonging to these Classes are not available, candidates belonging to other classes would be considered for temporary appointment.

Information about qualifications for each post and prescribed application form can be had from the undersigned on payment of **Rs. 7/-** in cash or by postal order alongwith self-addressed envelope of 22 cm × 13 cm. size with postal stamps worth **Rs. 2-70 ps.** affixed thereon.

The last date for receipt of applications will be **20-10-1982.**

G.A. Desai
REGISTRAR

MARATHWADA UNIVERSITY

AURANGABAD

Advertisement No. Estt/Dept/12/82

Applications are invited for the following posts in the University Departments so as to reach the undersigned on or before **October 20, 1982.**

1.	Reader in Physics (Reserved for SC/ST/NT/DNT)	One	Rs. 1200-50-1300-60-1900
2.	Reader in Chemistry	*One	-do-
3.	Lecturer in English (Reserved for ST/NT/DNT/SC)	*One	Rs. 700 40-1100-50-1600
4.	Lecturer in Chinese	One	-do-
5.	Lecturers in Economics (One is reserved for ST/NT/DNT/SC)	Two	-do-
6.	Lecturer in Zoology	One	-do-
7.	Lecturer in Botany (Reserved for SC/ST/NT/DNT)	*One	-do-
8.	Lecturer in Chemistry	*One	-do-
9.	Lecturer in Library Science	One	-do-
10.	Lecturer in Commerce (Reserved for ST/NT/DNT/SC)	One	-do-
11.	Lecturer in Mathematics	One	-do-
12.	Lecturer in Statistics	One	-do-
13.	Lecturer in Sociology (One temporary post is reserved for SC/ST/NT/DNT)	(One+ *One)	-do-

*Posts are temporary.

Candidates applying for the post of Reader should ordinarily be below the age of 45 years and those applying for the post of Lecturer should ordinarily be below the age of 35 years, relaxable by five years in the case of candidates belonging to backward classes. The age limit can also be relaxed in the case of deserving candates.

Eight copies of applications together with eight copies each of the testimonials, if any, separately for each post giving particulars in the prescribed form (which will be supplied on receipt of an Indian Postal Order of **Rs. 5/-** towards the cost of form) should be sent to the Registrar so as to reach him not later than **October 20, 1982.** The prescribed application forms will be supplied to the candidates on request a accompanied by a self-addressed envelop (23 × 10 cms) bearing postal stamps worth **Rs. 2/-** for the postage separately for each post.

Application forms will also be available in the Publication Unit of the University Office.

Candidates who are employed at present must submit their applications through their employers.

Canvassing, direct or indirect, will be disqualification.

B.M. Patodekar
REGISTRAR

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Deen Dayal Upadhya Marg, New Delhi-110002. Grams : UNIBOARD. Phone : 276504 & 273037.
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University

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH OCTOBER 15, 1982

Professor M.G.K. Menon, Member, Planning Commission, speaking at the Convocation of the Indian Institute of Technology, Madras. He was awarded an Honorary Degree of Doctor of Science.

ASSOCIATION OF INDIAN UNIVERSITIES PUBLICATION

A.I.U. PUBLICATIONS

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IN THIS ISSUE

The Costs of University Research : A Case Study of Andhra University 639
NSS : An Introduction to Practical Education 642

Campus News

Institute of Integrated Ocean Management at Anna Varsity 644
Workshop on correspondence courses 645
Refresher course in adult education 646
UGC seminar on fluid dynamics 646
Marathi Department at BHU 647
Annamalai Varsity to start new PG courses 647

Agriculture

Annual Convention of Indian Agricultural Universities Association 648
MPAU releases new varieties 648
More engineers for agriculture 649
New techniques for tomato seed extraction 650
Ford Foundation grant 650
Theses of the Month 651
Additions of AIU Library 653
Classified Advertisements 654

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

Universalisation of Primary Education : Non-Formal Education

N. Venkataiah*
K. Jayachandrama Naidu**

In this modern world, education has been used as a powerful instrument of social, economic and political change. With this end in view, many programmes of educational development such as expansion of primary and secondary education are underway.

According to the Article 45 of the Constitution, the state should strive to provide free and compulsory education for all the children upto the age of 14 years. Though ambitious targets of enrolment have been fixed from time to time to fulfil this directive, the desirable goal is still far from our reach. There are still a large number of boys and girls in this age group particularly those belonging to the deprived sections of society, who are out of school and therefore, do not receive any benefits of education. Three fourth (74%) of the non-school going children of this age group belong to nine educationally backward states in our country viz., Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. About two thirds of the non-school going children of this age group are girls and most of these children belong to the socially and economically backward classes of the society. The economic conditions of the parents are so poor that they are forced to depend on their children for supplementing their income to make a livelihood. Therefore, the children are not allowed by their parents to attend the schools.

Dropouts and Non-starters —Non-formal Education (NFE)

Even among those who join the formal primary schools, dropout in large number without even completing primary schooling. The survey conducted by the NCERT reveal that out of every 100 children enrolled in the first year of the primary school, only 40 complete the five years of primary school. In other words a sizable percentage of the children who actually attend will grow up as illiterate or semi-illiterate adults because of the large number of drop-outs and lack of opportunities to resume learning in later life. The rate of relapse into illiteracy in the case of drop-outs is quite alarming. The push-out and drop-out rate is 60 percent of pupils who enter class I, and they are pushed out or dropped out before class V which happens to be the time when the minimum literacy skills can be acquired. This

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enormous dropout rate is another major obstacle that has to be overcome in order to achieve the objective of universalisation of primary education.

The present system of formal education expects children to come to the school during day time and get education. But such a system definitely excludes the vast majority of people living below poverty line. It is increasingly realised that there is urgent need to tackle the problem of dropouts and non-starters. Universalisation of primary education cannot be dreamt without tackling this issue. It is accepted that the formal education system has failed to attract into its fold and retain in it a large number of children of the age group 6-14. The alternative strategy is provided by the non-formal approach in education. This approach gives the dropouts and non-starters all the benefits of primary school education without putting them through the rigidities of its time-tables, syllabi, etc. The non-formal education is in no way inferior to the system of formal education. Further, it is believed that non-formal education is the only way to achieve universalisation of primary education which had been eluding the country in spite of concerted effort during last 32 years. In the non-formal system of education out of school children (both non-starters and drop-outs) would be offered the same primary and middle level courses on a condensed and graded form with two to three hours daily instruction at places and timings suited to their convenience.

Objectives of NFE

From the human point of view all children are equal. They may belong to different persons, families or classes in society but all of them belong to society. It is the duty of the society to provide them equal educational opportunities.

The general objectives of NFE programme for children are (i) to enable the willing children to get entry in formal schools at multiple points and (ii) to improve the quality of life of children through non-formal education. Thus on one hand as programme for universalisation of primary education, the non-formal education programme is relevant to formal elementary education and on the other hand is akin to adult education because of the requirement of the clientele and the approach to be adopted.

Curriculum of NFE

Health, environment (physical and social), vocation, social awareness, literacy and numeracy are the dimensions of the content of non-formal education. The first four are more relevant to the second objective and the last two to the first objective. The ultimate objective is the improvement of the quality of life which is to be achieved through both. Simple theoretical information about these dimensions will not be useful and interesting to learners. They need practical orientation.

While there would be flexibility in non-formal education curriculum, the stress is being laid on developing competence rather than on theoretical and academic propositions. The curriculum has therefore been devised on the basis of national needs such as population, education, national integration and moral values.

Nature of NFE

The instructional programme for non-formal education should take care of the characteristics like flexibility, relevance and practicability. The instructional programme of non-formal education should be flexibile in terms of timing, curriculum, instructional material, instructional strategy, evaluation procedure, etc. The programme should be relevant to the local life depending on the specific physical and social environment. Further, the non-formal education should be practically useful to the learners. It should not involve a lot of investment of time, money and energy on the part of the learners.

Central Government and NFE

The Central Advisory Board of Education in 1974 called for giving up the exclusive emphasis on formal system of education and introduction within the system a large element of non-formal education. The Commonwealth Conference on Non-formal Education for Development—New Delhi-January 22-February 2, 1979 has also recommended that "Non-formal education should be seen as complementary to formal education in each country's development." Realising the importance of non-formal education for achieving the goal of universalisation of primary education, the Government of India has decided to implement on a large scale a country-wide system of non-formal education during the Sixth Five Year Plan. The Ministry of Education is extending special central assistance to nine educationally backward states on a 50:50 basis under a centrally sponsored scheme for non-formal educational programmes. A sum of Rs. 25 crores has already been earmarked in the sixth plan for this purpose. Grants have also been made available to other States and Union Territories to innovate experiments and projects in non-formal education.

Targets in Sixth Five Year Plan

It is proposed to enrol an additional 320 lakh children in the age group 6-14 under the system of formal and non-formal education. These targets embrace 220 lakh children in the age group 6-11 and 100 lakh children in the age group 11-14. It is expected that out of 220 lakh children in the age group 6-11, 100 lakh children are to be covered through formal schools and 120 lakh children through non-formal education. Out of 100 lakh children in the age group 11-14, 60 lakh children are to be covered through formal schools and 40 lakh children through non-formal education. Thus a target of 160 lakh children in the age group 6-14 are expected to be covered under non-formal education and 160 lakh children through formal education during the Sixth Five Year Plan. If these targets are achieved, the coverage of the age group to the relevant population will rise from 67% in 1977-78 to 87% in 1982-83. ☐

The Costs of University Research : A Case Study of Andhra University

K.S. Chalam*

University Education has three important functions, namely, teaching, research and leadership and dissemination of new ideas. Of which, research is considered to be an important function in the less industrialised nations where the facilities for research and development are inadequate. But, the Indian Universities seem to have not realised this. Further, the University Education in India, it is alleged, is biased towards pure research. Here we can broadly distinguish two types of research namely, 'pure research' and 'applied research'. In the case of pure research, the basic concern is with the discovery of fundamental laws and operations and of gaining insight into the working of nature and man. On the other, applied research is concerned with the use of the above knowledge and the results of pure research to meet man's diverse material and cultural needs. The universities all over the world are the centres of both types of research. Research and development are said to be responsible for the rapid structural changes that took place in the industrialised nations.

The Indian Universities, according to the Education Commission 1964-66, "have played relatively very small part in the sum total of Indian research which itself is far smaller than what it should be in relation to our capabilities and needs". Even the limited resources of university research are used for "heavy investment on sophisticated equipment for research which has little social relevance and which is reported only in international journals mainly used in the developed countries". However, attempts have been made recently to revamp the University research through the directions of the University Grants Commission. The part played by the State Governments in the policy matter of university research or research in general is negligible. Another interesting problem of university research is that there is no useful information available on university research in India. Perhaps it is "both a cause and an effect of the relative neglect of university research within the framework of the nations research activities and education" similarly, no attempt was made to estimate the expenditure on university research in the country. This is because of the inherent difficulty in separating expenditure on research from that of training. Moreover as Marc Nerlove points out that the university research and teaching have 'jointness' in production. It is said that, "the entire amount of the per student expenditure on universities cannot be treated as investment in research activities. And until we know the proportion of this amount which goes to research, we cannot say what really has been happening to research expenditures in our universities". The trend report on Economics of Education by the ICSSR has contained no information relating to the estimation of costs of university research in India. This shows the gap in research and also the difficulty in estimating the costs of university research.

Method of estimation

A cost estimate is however, attempted in this study to measure the unit cost of university research in Andhra Universty. It is assumed that the teaching and other operating costs and capital cost of university colleges are equally shared by the enrolled students and research scholars of the university. Here, estimation of unit cost needs the selection of a unit or output of research which can be either the production of a research paper or a Ph.D. or a project report etc. In fact the unit of output of research is such wider than the enrolled scholars for a Ph D. or M. Phil. But in the absence of data, we have assumed that the full-time enrolled research scholar is the unit of university research. There are conceptual problems in estimating the unit costs of university research by treating the scholars on par with post-graduate students. Because, the cost of administration, capital, common services etc. are not the same both for scholars and students in the university. The cost of administration for the students may be more than that of research scholar. At the same time, the cost of equipment, books etc. for a research scholar shall generally be higher than that of a research student. In the case of engineering education, the post-graduate degree (M.E.) is treated as a research course, as the U.G.C. Junior fellowships are also awarded to some P.G. students, there is justification for taking the engineering post-graduates as research students. The number of full time research scholars for PhD is negligible in the Engineering College. In the case of Arts, Commerce and Law, and Science Colleges, the enrolment of research students for M.Phil/Ph D. is taken for the estimation of costs. The university Board of Research Studies disburses the fellowships and other research grants in the ratio of 3:4 between Arts and Science colleges. The ratio is taken as the basis in allocating the total research grants (given as a lumpsum amount under 'research grants' heading in the university budget) between the colleges.

The operating costs of the university are estimated on the basis of the methodology provided by Coombs and Hallak and Chalam. The budget accounts of the University are taken to estimate the Institutional cost. The capital cost for the year 1979-80 is estimated by taking the depreciation changes for the existing capital for the university colleges. In estimating the government costs, receipts of the institution other than government grants and transfers have been deducted from the total expenditure since these amounts are contributed by the students. In addition to these operating costs, (shared by the scholars along with that of the students), the university incurs some amount of recurring expenditure also on the research contingencies of scholars and staff who are involved in research. This item is an institutional expenditure and therefore is given under the operating cost of university research. In the estimation of government cost, the research fellowships and scholarships awarded by different agencies through the university are only taken as the direct government contribution to the research students. The scholarships awarded by the Social Welfare Department to the weaker section research students are not taken into account since the data on this item is inadequate.

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Institutional cost of research

The institutional and government cost estimates are presented in Table-I. The unit institutional cost of research in Arts, Commerce and Law College is estimated to cost Rs. 4470 per year. In the case of Science College, the amount came to Rs. 7215 per year while that of Engineering (M.E.) college it is found Rs. 7244 per year. The average unit cost of research in all faculties of the university came to Rs. 5045 per year.

Out of the total amount, a large proportion of 36.75 per cent is devoted for teachers salaries followed by 26.67 per cent on administration in the Arts College. In the science college. teaching staff salaries constituted the maximum cost with 35.79 per cent of the total cost, followed by the Administration staff cost (29.83 per cent). The proportion of capital cost to the total cost is, however, same both in Arts College (13.11 per cent) and Science College (12.20 per cent). The proportion of cost devoted to each of the items to the total cost in case of Engineering College is found to be more with 33.99 per cent for research contingencies followed by administration cost with 20.78 per cent. The proportion of capital cost to the total cost in the Engineering college is almost the same as that of the (11.84 per cent) Science and Arts Colleges.

Table—I

Costs of Research in Andhra University 1979-80

(Amount in Rs.)

		Arts, Commerce and Law College	*Science and Technology College*	*Engineering College (M.E.)*
I.	Operating Cost			
	A. Teaching Staff Cost	1643 (36.76)	2582 (35.79)	1615 (22.30)
	B. Administration (Non-teaching Staff Cost)	1192 (26.67)	2152 (29.83)	1505 (20.78)
	C. Common Services and other Recurrent Expenditure	655 (14.66)	1011 (14.02)	803 (11.09)
	D. Research Contingencies to Scholars and Staff	394 (8.82)	590 (8.18)	2461 (33.99)
	E. Total Operating Cost	3884 (86.89)	6335 (87.81)	6384 (88.16)
II.	Fixed Cost			
	A. *Capital Cost*	*586* (13.11)	*880* (12.20)	*857* (11.84)
III.	Total Institutional Cost	4470 (100.00)	7215 (100.00)	7241 (100.00)
IV.	Government Cost			
	A. Operating Cost	3884	6335	6384
	B. Less Receipts from research students	150 (3.87)	250 (3.9[illegible])	250 (3.72)
	C. Institutional deficit met by the Government	3734	6085	6134
	D. Add Scholarships or Research Fellowships paid by the Govt.	556 (12.96)	643 (9.56)	578 (8.61)
	E. Total Government Cost (C+D)	4290	6728	6712

Note : 1. Figures in brackets indicate percentage to the total.
2. The figures in brackets in item IV indicate the percentage to the Total Government Cost.

Among the three colleges for which the costs are estimated, Engineering research costs are found to be more than the remaining two colleges. It is due to the fact that the amount devoted to research contingency in the engineering college is very high (Rs. 2461) compared to the remaining two colleges. It is because of the initial establishment and maintenance of laboratories of post-graduate and research courses in engineering college. This will explain the major variation in the costs of university research among the colleges. Another factor that explains the variation in the costs is found to be the amount of capital cost devoted in each of the colleges. The capital cost estimates of the research in the university colleges particularly in the science and engineering colleges seem to be an underestimate, since the use of the laboratories, equipment etc. by the research scholars in these colleges is generally more than the post-graduates. But, in our analysis, we have treated both of them as equal and the costs are estimated accordingly due to lack of information.

Government cost of university research

The government cost of University Research per scholar is estimated at Rs. 4290 in the Arts College, Rs. 6728 in the case of Science College and Rs. 6712 in the case of the Engineering college. It is interesting to find that the contribution of the scholar to the institutional cost of research accounted for nearly 4 per cent in all the colleges while the direct contribution of the government to the scholar through scholarships etc. amounted to more than double that of their contribution (8.11 to 12.96 per cent) to the college. The governments' contribution to the Institutional cost of a research scholar is less than the Government's contribution to a post-graduate student in the university colleges.

The neglect of university research

In order to examine the proportion of the total expenditure devoted to research in the University colleges, we have estimated the total cost of the university colleges alone by using the unit cost estimates of the previous section. The average cost per study of the University colleges was found to be Rs. 5186 per year and that of the research scholar, it is estimated at Rs. 6104 per year. The enrolment in each case is also known from the annual reports of the university. The total expenditure on (teaching and research) the university colleges is thus estimated at Rs. 342.46 lakhs of which research expenditure is found to be Rs. 60.75 lakhs. Thus the university devotes 17.33 per cent of its expenditure on research in the university colleges. But the total university expenditure including that part of the administration, examinations, etc. on affiliated colleges and other items like N.S.S., etc. under the normal expenditure during 1979-80 was Rs. 482.88 lakhs. When the research expenditure of the university is expressed as a proportion of the total university expenditure it comes to 12.43 per cent of the normal expenditure. It is interesting to observe that the total university expenditure estimated on the basis of the unit costs in the three colleges is almost the same as that of the actual budget expenditure for the year 1979-80. These estimates from the budget show that the expenditure on university colleges alone is found to be Rs. 372.88 lakhs in 1979-80 which is 8.16 per cent more than that of the estimate made on the basis of unit costs.

However this proportion of research expenditure to the total university expenditure is far less compared to the industrially advanced countries. The Education Commission pointed out that, "in all educationally advanced countries the expenditure on higher education... The percentage of total university expenditure devoted to research in our country is almost negligible... We are definitely of the view that by the end of the decade, something like a quarter of the total university expenditure should be devoted to research".

The above analysis shows that the proportion of expenditure devoted to research in the Andhra University is less than 20 per cent of its total expenditure. This calls for an immediate change in the policy of the government through its agencies like U.G.C. to see that at least 25 per cent of the university expenditure is devoted for research. If the above university is taken as a case study of a university in Andhra Pradesh, it shows that the recommendations of the Education Commission have not yet been fulfilled in the State. Further, this study brings into light an important area of research in economics of education which has not yet attracted the attention of the experts in our country. A detailed analysis of the unit cost of research in the Indian universities, is an imperative need for taking policy decisions in higher education and research.☐

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NSS: An Introduction to Practical Education

G.K. Rathi Madhukar*

The strength of the contemporary education system lies in the seeds it shows for the future. The student of today is the citizen of tomorrow, and on his shoulders rests the future, of not an individual or a family or a dynasty or a clan, but of the entire nation. Education is something more than mere listening and talking. Even a parrot can be made to speak, talk and recite. A parrot can give you a wake-up call, but he cannot be called educated. Education has in its fold all the good, necessary for a society. The aim of education must be and really it is, the over all development of the personality of an individual. Education should not only help an individual to make its place under the sun but at the same time enable him to come out of the cocoon of his own self into one humanity.

There is no disagreement on this point, that, education means more than mere black-board teaching. Extra-curricular activities form part and parcel of the education system. If I say, that class-room teaching and co-curricular ativities are like two legs of a man, I make no exaggeration. Amputation of either cannot be afforded and such loss, if occurs, cannot be compensated.

The best part of any education system, is that which aims at making the students conscious about their duty and obligations towards the society. The National Service Scheme, supplements this need of the education system.

The scheme of social service for imparting education outside the class-rooms and service of the community and nation was launched by Government of India from 2nd October, 1969.

This scheme is known as National Service Scheme (N.S.S.). It arouses the students social consciousness and gives them opportunities to work with and among people, to develop awareness and knowledge of social realities and put their chergies in creative and constructive social work.

The world is facing a crisis of character and civilization. In face of such crisis N.S.S. stands firm as a rock. N.S.S. is a process of character building. It channelises the energy of youth and puts it in the right direction so that the community benefits from it. The various programmes introduced by N.S.S. stands testimony to this, not only the community is served, they also help in mobilising the energy of the youth of the country. Adult education, tree plantation, digging of wells, family planning, sanitation, construction of roads etc. are such programmes.

While inaugurating the centenary celebrations of St. Stephens College, Delhi the Prime Minister, Mrs. Indira Gandhi, remarked, "Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of castes and class, smoothing out inequalities imposed by birth and other circumstances". N.S.S. helps to a larg eextent in making education such a liberating force. The spirit of voluntary help to the weaker sections of society is kindled by N.S.S. The concern for the well being the community in general and the weaker sections in particular is a high water of N.S.S.

In the present age when society seems to be faced with the destruction of man at all levels, N.S.S. is playing an important role. The two fold need of improving the lot of the community and putting the youth on the right track, is fulfilled by N.S.S. There is always a gap between saying and doing, between word and action, even the literary giant of 20th century, T.S. Elliot agrees with this, when he says:

"Between the idea and the reality

Between the motion and the act

Between the conception and the creation

Between the emotion and the response falls the shadow.

We hear of various programmes and schemes of social service, many organisations declare their intention and programmes to serve the society but what additional they leave with this is "the shadow" the gap between the thought and the action. Every impartial observer will declare N.S.S. free from this concern.

Thousands of N.S.S. volunteers are busy in implementing the constructive programmes. The students go out, organise camps and serve the community. Not only in the teaching days do the N.S.S. volunteers work in the field but also during the vacations special camps are organised.

N.S.S. has become an important part of the education system, its role in building both the students and the community cannot be undermined. The service rendered by N.S.S. to the society is very valuable. Gandhiji once said. "..........the only programme worth preaching is that which an be converted into action" and N.S.S. is one for implementation of such programme. □

**Programme Officer, NSS Unit, Govt. Bangur P.G College, Didwana*

Nineteenth Convocation of IIT, Madras

(From Our Correspondent)

The Indian Institute of Technology, Madras conferred an Honorary Degree of Doctor of Science on Professor M. G. K. Menon, Member, Planning Commission at the Nineteenth Convocation held on September 4, 1982. Presenting his Annual Report on the occasion, Professor P. V. Indiresan, Director of the Institute mentioned various achievements of the students and members of the faculty. Shri Shankar Balakrishnan, a B. Tech. student in Mechanical Engineering set an unbeatable cent per cent record in the GMAT Examination and set up a record also in the GRE Examination. Shri Anant Agarwal, another B. Tech. student won the first prize of the Institution of Electrical and Electronic Engineers for a paper he presented in a conference in Paris. 13 of the institute students who visited German Universities and industries under German Academic Exchange Service impressed them so much that they would like to make this exchange an annual feature. Similarly, Professor Indiresan pointed out that members of faculty were committed to Research and Development more relevant to the needs of the country. In this context, he said that the Institute had record earnings of Rs. 43 lakhs through Industrial Consultancy Centre and Rs. 92 lakhs from sponsored research. The value of new projects sanctioned came to Rs. 1.3 crores.

The Centre for Rural Development, Professor Indiresan said, had attracted favourable attention in many quarters both in India and abroad. He was happy that the Government of Tamil Nadu considered this to be a model exercise deserved to be repeated in other areas also. The Director hoped that the Institute would be given an opportunity to establish a Rural Industrial Community Housing and Essential Services (RICHES) Centre for re-settling repatriates from Sri Lanka.

Dealing with the Institute's continuing concern with social problems, Professor Indiresan in his report mentioned various efforts taken during the past one year. The Institute organised a programme for the top SC/ST students of Tamil Nadu by inviting them to spend two days in the Institute and get acquainted with admission procedures. It also organised coaching classes for 45 of them in a campus school. Besides the Institute invited the concerned officials from four southern states to plan a systematic programme for helping the students of weaker sections.

I.I.T. will celebrate its Silver Jubilee in the coming year (1983-84). Mentioning this fact, the Director said in his report that the institute was planning to commemorate this event by getting together those pioneers who established the Institute nearly 25 years ago as also its distinguished alumni. Top intellectuals would also be invited to give series of lectures which would become a valuable compendium of the state of science and society in 1984. A Science Park where entrepreneurs and alumni could innovate and experiment with new manufacturing processes would be also established. A conference centre for scientists and engineers was also being planned.

Expressing concern at the continuing exodus of scientists and technologists from the Institute, the Director pleaded for urgent remedial measures to rectify certain imbalances in the treatment being meted out to qualified people. Disclosing that 14 of the faculty left the Institute during the year, Professor Indiresan pointed that the scientists had an international market and unless their lot was improved situation would not turn better.

In his convocation address, Dr. Y. Nayudamma, Vice-Chancellor of Jawaharlal Nehru University, pleaded for more agro-industries in rural areas where the bulk crop was produced. This would result in "better returns to the farmers", "more savings" for re-investment and gainful employment. Pointing out that rural industrialisation did not mean setting up of factories in rural areas he said that it would be worthwhile to start units which could make use of by-products of paddy like straw, fodder, husk and rice bran. The proportion of by-products to the food obtained for human consumption was relatively high and for over 150 million tonnes of foodgrains produced in India, 300 million tonnes of dry products were available, he pointed out. However, this "bio mass" had not been used effectively and it needed attention of the Government, he stressed. In this context, he said that the Centre for Development Alternatives (CDA) had already made contributions to the "Leaf-to-Root" concept. Stressing the importance of high technology to the growth of the country, Dr. Nayudamma made a particular mention of genetic engineering and bio-technology which, he said, could be applied for better crop-yield and utilisation of farm-residues. It is in such areas, institutions like IITs, Dr Nayudamma said, should be in the forefront and develop competence and excellence. He exhorted IITs to become seedbeds for technology innovation and raise the technology entrepreneurs to set up knowledge based industries. It is such high level intellectual inputs that should solve the low level rural development problems. He urged the IIT graduates to become "job generators" rather than "job seekers".

The Institute awarded Degree to as many as 684 students of which B.Tech. accounted for 260, M.Tech. 262, M.S. 46 and Ph.D. 68. □

Campus News

Institute of Integrated Ocean Management at Anna Varsity

The Government of Tamilnadu has decided to set up an Institute of Integrated Ocean Management in Anna University. The objectives of the Institute are:

- To act as a co-ordinating institute responsive to the Operational and Research requirements of the State.
- To provide support, to interact with marine industries and to take up problems in the investigation, design, construction and scientific experiments through provision of trained manpower and consultancy services.
- To set up a data centre for obtaining Oceanographic and Marine Meteorological observations at the sea from ships, buoys, satellites etc., to process and disseminate the data and to have data archiving and exchange system.
- To set up an infrastructure consisting of pharmacologists, taxonomists, microbiologists, medical scientists and chemists for harvesting and chemically isolating the pharmacologically active ingredients from marine organisms and developing a potent biotoxin from them for therapeutic use.
- To develop the capability and provide technical assistance and serve as a focal point in the State and the region in matters relating to education, training and manpower development in Oceanography, Climatology, deep-sea fauna and flora, estuarine Oceanography marine eco-system, marine geology, chemical oceanography, sea water conversion, ocean thermal energy conversion, Oceanic pollution and prevention and coastal zone management.
- To assist in the formulation of coastal zone environmental policy to reconcile the needs of growth with concern for environmental quality.

The Institute when fully developed will have the following divisions: Physical Oceanography; Geological and Geophysical Oceanography; Chemical Oceanography; Biological Oceanography; Atmospheric Science; Coastal Zone Management; and Ocean Data Centre.

The Institute will be developed in the stages : (1) Establishment of the Ocean Data Centre in Anna University during the *Sixth Plan* period at a cost of Rs 48.13 lakhs; (2) Establishment of the other six divisions during the *Seventh Plan* period. The outlay contemplated in the Seventh Plan is Rs. 470.00 lakhs.

To start with the division of Ocean Data Centre will be established this year in the University for which the Government is to provide financial assistance of Rs. 3.00 lakhs.

National seminar on post-literacy at Hyderabad

Inaugurating a National Seminar on Post-Literacy organised by the State Resource Centre for Adult Education, Osmania University and the Directorate of Adult Education at Hyderabad recently, Mr. T.M. Sakya, Educational Officer of Unesco Regional Office at Bangkok, stressed the need to develop different and new post-literacy programmes to meet the needs of various groups of neo-literates.

Mr. Sakya said the Asian and the Pacific regions have a very high illiteracy and the countries especially in the south were the worst affected. He said the major reason was the dropouts from the schools which added to the large number of adult illiterates. He said since 1950, efforts were made to implement adult education programmes, but because of population growth, very few countries succeeded in checking illiteracy.

Prof. G. Ram Reddy, Vice-Chancellor of Osmania University, who presided said that experts should see that their findings were implemented properly. He said in all developing countries the implementation of new techniques took a very long time, which resulted in much wastage.

In many development programmes there was no proper coordination between the various agencies working for the same cause, the Vice-Chancellor further added. He called for proper coordination to make the programme a success.

Miss H.K. Singh, Director, Adult Education, GOI, welcoming said the neo-literates had different problems because of various degrees of awareness and literacy. She said Unesco experts from US, Indonesia, Bangladesh, Sri Lanka were also participating to study different models available. She said the role of mass media and folk arts would also be discussed in detail for promoting adult education.

Prof. V. Eswara Reddy, Hony. Director, State Resource Centre for Adult Education, said that adult education centres were also posed with the serious problem of dropouts.

Mr. D.V. Sharma, Joint Director, Adult Education, GOI, proposed a vote of thanks.

Social dimensions of Law

Professor Krishna Bahadur, Dean of the Faculty of Law and Head of the Department of Law, Banaras Hindu University, gave a lecture on the" Social Dimensions of Law" under the auspices of the "Current Law Forum" of the Law School, Banaras Hindu University.

Professor Krishna Bahadur exploded the social dimensions theory of law in India. While speaking from the viewpoint of value, nuances and philosophy, he submitted that infusion of sociology into law was made in India as early as in the later half of the eighteenth century. Law has never been used as a means to an end in this country. Rather it has, in his opinion, served as an instrument of strategy to create gulf in the Indian social movement during the pre-independence days. It is perpetuating the status quo in our society after the Indian independence. He illustrated, in this context, the examples of the various personal law legislations and, in particular, the Industrial Disputes Act, the Indian Dowry Act and *the protection of Civil Rights Act*; further he argued how they had failed to meet the desired social ends. While discussing etymology, Professor Krishan Bahadur expressed that social legislations were made with political motives alone, and that these legislation would have no meaning unless people were educated in that respect. He also suggested that non-formal agencies should come forward to educate people about such social legislations.

Dr. Parmanand Singh, Shri P.N. Banerjee, Miss Abha Trivedi and Shri M.P. Singh actively participated in the discussion. A vote of thanks was proposed by Shri D.P. Verma, Lecturer in Law and Convener of the Current Law Forum.

MIDAS computer from NRSA to Anna University

The Remote Sensing Centre set up in the Anna University is to acquire a Multispectral Interactive Data Analysis System (MIDAS) from the NRSA, Hyderabad at a cost of Rs. 14 lakhs. The computer will be used to analyze, classify and generate grey maps of the data covering Tamilnadu provided by the LANDSAT Satellites. The information provided by the computer will be utilized by the various departments of the Tamil Nadu Government such as the departments of Ground Water, Agriculture, Forestry, Urban and Country Planning.

The University is offering a one-year postgraduate diploma course in Remote Sensing. The course will be shortly upgraded into a full-fledged post-graduate degree programme.

The Government of Tamilnadu has sanctioned a grant of Rs. 76 lakhs for the setting up of this Centre in Anna University.

English translation of *Sushruta Samhita*

Dr. G.D. Singhal, Prof. of Surgery and Head, Paediatric Surgery Section, Institute of Medical Sciences, Banaras Hindu University, presented to Smt. Indira Gandhi, the Prime Minister of India, a set of eight books of *Ancient Indian Surgery* Series, which are English translations of Sushruta Samhita, written by Sushruta 2500 years ago.

Dr. Singhal after presenting the books explained its immense research potentiality to her. He suggested to her that the essentials of Ayurveda should be taught in all the Medical Colleges of India; the next Indian satellite should be named "Sushruta, the father of Surgery"; a series of postage stamps should be issued on the works of Sushruta; the mass media should be moved to make people conscious of the glory of Ayurveda and all Ayurvedic works for any significant research should first be brought into a modern language using scientific terminology.

Sushruta learnt, lived, practised and wrote at Varanasi 2500 years ago. He is regarded as the pioneer anatomist and one of the best known surgeons of his times. As his writings are in Sanskrit, therefore, Dr. Singhal, a modern surgeon, in collaboration with more than 20 Ayurvedic Colleagues, translated all the186 chapters of his treatise "Sushruta Samhita" and is bringing it out in 12 volumes (over 5000 pages) of Ancient Indian Surgery series.

Workshop on correspondence courses

Panjab University is actively pursuing a proposal from Nigeria to have a centre of correspondence courses in that country. Negotiations in this regard are proceeding. With the approval of the Government of India, it might be possible for Panjab University to look across the seas and have an active presence in Nigeria.

This was disclosed by Prof. R.C. Paul, Vice-Chancellor, Panjab University while inaugurating the '*Workshop for Developing Guidelines for Evaluation of Response Sheet Assignments*'.

Prof. Paul laid stress on Evaluation of Response Sheet and urged the researchers and educators in the field of correspondence education to pay greater attention to it.

The University is also considering starting Science Courses at the degree level. A survey of prospective students had already been carried out.

Prof. Paul's speech was read by Mr. Satya Pal Anand, Director, Correspondence Courses.

Mr. W. de S. Ratnaweera, Director, C.Y.P. Asia-Pacific Centre, Chandigarh, in his presidential remarks spoke of the collaboration with the University Correspondence Courses for training programme of the Asia Pacific Centre.

Dr. R.L. Phutela, Dr. Jagdish Singh of Centre for Educational Technology, N.C.E.R.T. and Miss Vijay Mullay also spoke.

The workshop organised by the Directorate of Correspondence Courses, Panjab University, was run from 5th to 9th October.

Engineering-Scientific experiment by BHU scientist

Dr. Prem Shankar Dube, Technical Officer, Banaras Hindu University, has developed the technique of Electronic-Chromising to help overcome two main problems of the automobiles having great relevance to a developing country like India with short oil resources; viz. the engine life and fuel consumption. It is a common experience that automobile engines require boring and new fitting of pistons after some time of running.

The technology developed and tested by Dr. Dube is based upon the fact that the surface of the engine liner is hardened to a very high degree about 6 to 7 times the hardness of the normal liner commonly used. The excessive hardness of the surface does away the basic problem of bore in the engines. This process is carried out on normal liners after carrying out all mechanical and machining operations and then finally the surface is hardened so that in future there is no bore problem. The important part of the experiment is that no fundamental change is required except the treatment of the engine liner.

Refresher course in adult education

Inaugurating a two-day Refresher Course in Adult Education for NSS Programme Officers of Colleges organised by the National Adult Education Programme of Osmania University recently, Mr. U. Ramachandran, Director of Higher Education said that Andhra Pradesh had to catch up with other States in literacy and for this dedicated and motivated students were needed. He said that by involving college students in Adult Education Programme a new link with the community was established. Prior to this programme, the students were only participating in NCC and Sports which were both aimed at developing leadership qualities and discipline. The new programmes have set a healthy trend in exposing the students to the rural atmosphere and the problems of the urban poor.

Mrs. Sathi Nair, Joint Secretary, Education, who presided, said that involvement of voluntary organisations, students and intellectuals was needed in order to wipe out the illiteracy. She said one lakh students are being involved to teach ten lakh adults. The literacy programmes should function with urgency and idealism, otherwise the gulf would widen, she opined.

Dr. V. Venkataseshiah, Programme Adviser, NSS, said the programme officers were responsible for motivating students and making the programme a success.

Medical orientation to non-medical volunteers

A two-day 'Medical Orientation Programme' for the non-medical volunteers of the Kakatiya University was organised by the NSS Unit of the Kakatiya Medical College on September 11 and 12.

Inaugurating the programme, *Prof. T. Vasudev, Vice-Chancellor* said that such training to non-medical volunteers would be of immense use to acquaint themselves with the rudimentary knowledge on family welfare programme, first-aid, environmental sanitation, hygiene, nutrition, child health etc. Volunteers with such medical background could serve the community even while studying in the educational institutions.

Sixteen units consisting of 160 boys and girls participated. The scheme was envisaged to cover, in a phased manner, 2000 non-medical NSS volunteers studying in different colleges of the Kakatiya University.

UGC seminar on fluid dynamics

The Department of Mathematics of the Sri Venkateswara University conducted a seminar on "Fluid Dynamics" with financial assistance from the U.G.C., under the Directorship of Professor P.V. Arunachalam. The seminar consisted of invited lectures and presentation of research papers. Research workers from different parts of the country participated. The Resource Personnel consisted of 6 Professors from outside and five from the faculty. There were 18 outstation and 16 local participants.

Professor G. Lakshminarayana, Vice - Chancellor, Jawaharlal Nehru Technological University, who inaugurated the Seminar, Professor K. Sitaram who was in the chair and Professors S.D. Nigam and N. Rudraiah who also spoke on the occasion, stressed the urgent need of applied research and interdisciplinary programmes for the scientific advancement of the nation.

A total of 33 papers were presented at the seminar.

Computer science and application course at Anna University

The U.G.C. has identified the Anna University as one of the Universities to offer a one-year post B.Sc. Diploma course in Computer Science and Application. The University is already offering an undergraduate degree programme and a Postgraduate degree programme in Computer Science and Technology for engineering graduates. The proposed programme will provide opportunities for Science graduates to qualify themselves as Programmers/Assistant Programmers. The course is de-

RELEASING IN OCTOBER, 1982

1. **Bibliography of Doctoral Dissertations—Natural & Applied Sciences 1979-80.**
2. **Handbook of Management Education—1983**

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signed to meet the large requirements of manpower at the level of programmers. The expenditure on the running of the course is to be fully met by the U.G.C. and the Department of Electronics of the Government of India. Admissions to the course would be on an all-India basis.

Gandhi Jayanti at BITS

Gandhi Jayanti was celebrated at BITS on 2 October, 1982. Apart from the singing of the favourite *bhajans* of Gandhiji in several Indian languages and administration of pledge, a talk on '*The Enigma of Gandhiji's Personality*' by Prof. K.V. Ramanan. (Dean, Academic Registration and Counselling Division) marked the celebrations. Prof. K.M. Dholakia. Dean, Faculty Division I, presided over the function.

In the evening a programme was specially chalked out for children to celebrate the *Jayanti*. One of the highlights of this programme was a talk on Gandhiji's life by a student of III standard in a local school.

Bombay University fair planned

An exhibition on youth, education and national development called "Uni-Fair 125" will be organised by the Bombay University as part of its post-centennial silver jubilee celebrations.

The fair would be held between December 31, 1982 and February 10, 1983. The exhibition will be educative as well as commercial and will depict the progress made by India and her youth since Independence. Students from all universities in India will be invited to participate.

A substantial amount of money is proposed to be raised through this exhibition which will go towards various projects and schemes planned by the university. The profits will be used for educational purposes and for the institution of chairs, building lady's hostels, sports pavilion and modernisation of research facilities.

An attractive brochure with details of the exhibition and its proposed lay-out at Cross Maidan has been brought out.

Marathi Department at BHU

The Banaras Hindu University has created an independent department of Marathi under the faculty of arts, it is reported.

The Banaras Hindu University was the only Central University having an independent department of Marathi.

Besides imparting instructions in B.A. (Hons), MA and certificate and diploma courses, research facilities leading to Ph.D. were also available.

The newly established Marathi department proposes to undertake research projects on linguistic study of the Banaras-Marathi dialect, the contribution of the Marathi writers to the Hindi literature and linguistic and literary survey of the rare Marathi manuscripts preserved at Bharatpur.

The University Grants Commission has been approached to sanction the necessary funds for the projects, it is said.

Hari Om Ashram Research Endowment Prize

The research papers in the subject of "Theoretical Physics" published during the years 1976-81 by Dr. P. Ramaswamy and Mr. Dhanasekaran of the A.C. College of Technology, Anna University have been adjudged best for the award of the Hari Om Ashram Prerit Shri Hari Vallabhadas Chunilal Shah Research Endowment prize by the Sardar Patel University, Vallabh Vidyanagar, Gujarat.

A cash prize of Rs. 2400 and a gold medal is to be awarded to Dr. P. Ramaswamy and a cash prize of Rs. 1600 is to be awarded to Mr. R. Dhanasekaran at the next convocation of the University.

Engineers' Day at BITS

The fifteenth Engineers' Day was celebrated at BITS on 15 September, 1982. In his key-note address entitled '*The Engineer and Development Dynamics*' Prof. K.V. Ramanan, Dean, Academic Registration and Counselling Division pointed out that in a developing country like ours there was a need for both expansive growth aimed at full employment of available labour force, and intensive growth through the efficient use of science and technology, new technological innovations and vertical transfer of technology. The engineer must gear himself to perform the gigantic task of development by playing a pivotal role, both as an innovator and as an efficient manager of the national resources. In his presidential remarks Prof. I.J. Nagrath (Dean Instruction Division) expressed the view that in order to achieve the national objectives, India had no choice but to go in for high technology. This would necessarily demand a much wider role for our engineers, he added. A paper entitled '*Development and Transfer of Technology in Developing Countries*' was also read on the occasion by a final year student.

Annamalai Varsity to start new PG courses

The Annamalai University has proposed to start a number of new post-graduate diploma and degree courses. Among the new job-oriented and socially relevant courses are M.A. in Development Education and diploma courses in German, French, corporate secretaryship, guidance and counselling, archives keeping, tourism, spectroscopy and magnetic science.

Roorkee Varsity help for Nepal

The University of Roorkee has taken up an ambitious plan of assisting Nepal by preparing engineers for various Nepalese projects.

The university will select 50 Nepalese students each year through an open competition for admission to its graduate programme in civil engineering. About 100 students have already been admitted.

The Ministry of Water Resources of the Government of Nepal

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is financing this training scheme, it is reported.

LU likely to have an engineering faculty

A Faculty of Engineering is likely to be established at Lucknow University shortly. The Union Minister of State for Education, Mrs Shiela Kaul, had earlier made an announcement that a full-fledged College of Engineering was soon to be established at Lucknow. The move of the University is in conjunction with the Minister's statement, it is reported.

PR forum at Lucknow

A Public Relations Forum has been set up at the Lucknow University. At the first meeting of the forum held recently, it was decided to bring out a monthly journal titled '*University Forum*' with the express purpose of refurnishing the image of the University.

Journalism courses at UP State Universities

The State Universities in UP are likely to launch full-fledged Journalism courses shortly. Already the start of a 2-year course in Journalism in Allahabad University is under the active consideration of the State Government. Other State Universities in UP would also offer Journalism courses in due course.

At present in UP only Banaras Hindu University offers a course in Journalism.

Annual Convention of Indian Agricultural Universities Association

Inaugurating the 11th annual convention of the Indian Agricultural Universities' Association and the Rs. 115-lakh SIDA-aided water technology centre recently at Coimbatore, Dr. O.P. Gautam, Director-General of ICAR called for qualitative improvement in agricultural education, research and extension to increase productivity.

Addressing the Vice-Chancellors, researchers, scientists and officials, he said though quantity-wise achievements made so far had been commendable, much remained to be done to ensure qualitative excellence. The Government had given the required funds to encourage agricultural education and research. Universities and research institutions should make best use of the facilities to bring about alround qualitative improvement in the agricultural sector.

While conceding the need for a constant review of the educational system to set right weaknesses that had set in, Dr. Gautam pleaded for the retention of the internal assessment system. "We must make determined efforts to ensure that we do not revert to the system which we had replaced with sufficient reasons".

Dr. Gautam laid stress on reviewing restrictive admission policies in the agricultural universities which rendered inter-State and inter-regional movement of students difficult. He wanted strengthening of the planning process of the agricultural universities to set right imbalances in the growth of university programmes. Necessary vigour, dynamism and openness of the educational system should be maintained through "open faculty recruitment system".

Dr. Sukhdev Singh, Secretary-Treasurer of the Association, welcoming the gathering said the conference would deal with subjects like desirable changes in the university autonomy system for qualitative improvement.

Mr. A Venkataraman, Vice-Chancellor of the Tamil Nadu Agricultural University, who presided, said orientation of research to suit the needs of each area or region, evolution of technology to be within the reach of the farming community and management of resouıces to ensure optimum results should be given foremost consideration.

Dr. Y. Gustaffson of the Royal Institute of Technology, Stockholm and Dr. C.G. Bennedich of the SIDA, hoped that the new centre would help in efficient use of the scarce water resources in this region.

Prof. R.K. Sivanappan, Dean, College of Agricultural Engineering, presented momentoes to the representatives from Sweden. Dr. V. N. Madhavarao, Dean, Agricultural College and Research Institute, proposed a vote of thanks.

MPAU releases new varieties

The Mahatma Phule Agricultural University has released recently a new **Grape** variety named as "Phule Pragati". The vines of this variety are semi-vigorous in growth, bunch is slightly bigger in size and is medium in length, conical and imposing, slightly semi-compact and it ripens uniformly. Berries are conspicuously elongated and have attractive greenish yellow colour and an appealing lustre. They are more firmly attached to the pedicial and their skin is little bit thicker. Due to these specific characters it withstands in transport and is quickly disposed off in market at about 20-25 per cent bonus price over Chimasahebi.

(ii) **Safflower** : The new variety of Safflower is named as "Bhima" yields 40% more than the present very popular variety Tara. It has an oil content of 31.5% and it is more resistant to the diseases of leaf spot and wilt. This variety has been recommended for cultivation in Western Maharashtra and Buldhana, Aurangabad and Jalgaon districts.

(iii) **Brinjal** : The variety brinjal which has been named as 'Vaishali' yields 70% more than the presently widely cultivated variety Manjari Gota.

(iv) **Bhindi (Okra)**: Selection—2-2 is a new bhindi variety that yields 20-30% more than Pusa Sawani. It is greener in colour than Pusa Sawani and less susceptible to the disease yellow vein mosaic.

HAU Farm Darshan Mela

Haryana Agricultural University organised a two-day Farm Darshan Mela on 14th & 15th September, 1982. More than 1500 farmers from Haryana and other nearby states participated in this mela. University scientists showed the farmers various crops of bajra, sugarcane and cotton etc which have been evolved with the latest technology. On this occasion the university had also made arrangements for sale of seeds of various rabi crops.

During this year the pulses section of the research farm was a great atrraction for the visiting farmers where the farmers were shown the various varieties of moong evolved by HAU scientists like K-851 and MH309.

Addressing the farmers on this occasion the Vice-Chancellor Dr. J.S.P. Yadav said, 'Frequent interaction with the farmers helps the scientists in making efforts for problem oriented research. He urged upon the farmers to adopt new technology and have direct contact with the scientists. A number of farmers requested the Vice-Chancellor that university should make seeds available to them either from the various departments of farm itself. Buzz section was organised and many farmers got satisfactory answers of their agricultural problem from experts of the university.

More engineers for agriculture

Presiding over a seminar on Agricultural Technologies organised by the Departments of Farm Power & Machinery, Soil and Water Engineering and Civil Engineering of the Punjab Agricultural University, Dr. Sukhdev Singh, Vice-Chancellor of the University said that mechanisation of farming was an important factor; in the green revolution in Punjab. With it agriculture got respectability and attracted the educated youngmen to farming. The Vice-Chancellor said that by simple and efficient bio-gas plants in the rural areas, would similarly reduce the drudgery of the work of rural women.

Mr. Mukhtiar Singh Sra, Director of Agriculture, Punjab, who inaugurated the seminar, said that the agricultural engineering wing of his department was being strengthened and more agricultural engineers were being recruited. The Punjab farmers had invested more than Rs 1500 crores in the farm machinery, he said. It, therefore, became necessary to educate them on proper operation and maintenance of their tractors, tubewells and other farm implements. He urged the engineers of the PAU to develop cheap harvesters to enable the farmers to complete their harvesting in time.

Dr. S.S. Johl, Director of Research of the PAU, said that items of farm machinery should be carefully tested before their introduction.

UAS participates in horticultural show

The University of Agricultural Sciences, Bangalore participated in the Horticultural Show at Lalbagh, Bangalore, from August 8 to 15, 1982.

The exhibition stall, set up by the UAS in the Horticultural Show attracted many visitors and was awarded the outstanding-I prize.

33rd Vanamahotsava at UAS

The UAS, Bangalore, celebrated the 33rd 'Vanamahotsava' on August 24, 1982 for popularising the new concept of "High Density Plantation" in farm forestry. Sri Pappa Rao, a progressive farmer from Raichur district of Karnataka inaugurated the programme and stressed that 'High Density Plantation' technique is going to be a breakthrough in farm forestry.

All-India sugarcane research workshop at MPAU

The Tenth All India Sugarcane Research Workshop and National Seminar on sugarcane productivity was organised by the Mahatma Phule Krishi Vidyapeeth on 27-30 September at Pune. Inaugurating the workshop Dr. D.K. Salunkhe, Vice-Chancellor of the MPAU highlighted the contributions of Maharashtra in the field of improved recovery and varieties, smut control and cooperative management in sugarcane. He also suggested for strengthening efforts in sugarcane research through assistance from ICAR and other sources.

Shri Balasaheb Vikhe Patil, M.P. and Chairman MRSSKS Ltd., Bombay in his key-note address identified many constraints in sugarcane production, productivity and cost of production.

Earlier citations were presented by the Vice-Chancellor of the MPAU to Dr. D.G. Hapse, Sugarcane Specialist, C.S.R.S., Padegaon and postumously to Dr. H.R. Arakeri for their contribution to sugarcane development.

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ICMR sanctions a new study to JNKVV

The Indian Council of Medical Research, New Delhi, has recently sanctioned to Jawaharlal Nehru Krishi Vishwa Vidyalaya a study on the subject: "Zoonatic potentials, zooprophylasix, sero-diagnosis and quick identification of cercariae of some mammalian schistosomes of Indian origin". The scheme is for two years and will be conducted by the department of parasitology at the college of veterinary science and animal husbandry, Jabalpur.

New techniques for tomato seed extraction

The experts of the Department of Food Science and Technology of the Punjab Agricultural University have developed and standardized a new technique for drawing out seeds from tomatoes. Called the 'cold-break method', it gives 60 to 70 per cent more seed than the present method in use.

Dr. K. S. Sekhon said that apart from good quality seed, the juice obtained as a by-product by this method is of very good quality and can be used for various products like tomato ketchup, ready-to-serve juice and paste. The cost of tomatoes used can be recovered from the seed itself and the juice is obtained as a by-product.

Techniques to increase copra yield in coconut

Manurial schedule at 50 kg of compost plus NPK at 560: 320: 1200 g/palm, irrigation at 10 days interval and intercultural operation of ploughing twice in July-August and December-January were adopted by TNAU for adult palms of the east coast tall variety. There was an increase of 34 kg/ha of copra due to cultural practices and 48 kg ha due to irrigation alone. Manuring alone increased the copra yield by 743 kg/ha. Manuring followed by irrigation resulted in an increase of 1234 kg/ha. Combination of manuring, irrigation and intercultural operation gave significant increase of 1460 kg/ha of copra compared to control.

*

TNAU—New varieties

Dr. K. Kalimuthu, Pro-Chancellor of Tamil Nadu Agricultural University and Minister for Agriculture, Government of Tamil Nadu, released six new varieties of Tamil Nadu Agricultural University recently. The new varieties are : Co 43 rice, Ponmanrice, Co H1 hybrid maize, MCU 10 cotton, Co 1 cumbu napier hybrid and Adhyaman sugarcane.

Yellowing of grape vine leaves

Yellowing of grape vine leaves was noticed in Palladam Taluk. A test check with mild dose of $Fe_2 SO_4$ and Urea (5 g/lit) was sprayed. A month later one kg of urea along with 10 g of borax in 100 lit of water was sprayed. There was complete recovery.

After seeing the result many farmers in Palladam area are adopting this method for correcting the leaf yellowing in grape vine.

Ford Foundation Grant

The Ford Foundation has approved a grant of $ 39,500 to TNAU for a field project to train village women in sericulture and dairy farming.

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THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. **De, Sankarkumar.** Studies in the effects of non-homogeneity of the elastic properties of bodies. University of Calcutta.

2. **Rama Kant.** Some non-linear stability problems in electromagnetohydrodynamics. Panjab University.

3. **Rana, S.S.** Finite spline interpolation. University of Jabalpur.

4. **Yadav, Jaswant Singh.** Mathematical study of some lubrication problems. Kanpur University.

Physics

1. **Chandra Mouli, V.** Studies on electron spin resonance sprectra of Cu^{2+}ion in some monovalent and divalent host lattices. Osmania University.

2. **Das, Atindranath.** Structural phase transitions and their studies in cobalt-fluosilicate and cobalt fluozirconate hexahydrate crystals. University of Calcutta.

3. **Ghosh, Gora Chand.** Some studies on temperature dependent optical properties of crystals for non-linear optical laser devices. University of Burdwan.

4. **Jena, Surendranath.** Unified approach to the study of light and heavy mesons in the framework of vaccum polarization corrected potential model. Utkal University.

5. **Kistaiah, P.** High temperature and high pressure X-ray studies on some crystalline materials. Osmania University.

6. **Mallick, Nirmallya.** Wave function approach to of shell scattering. University of Burdwan.

7. **Mohammed Elyas.** Studies of mechanoluminescence produced during application and release of a uniaxial pressure, in x-irradiated KBr, KCl, KI, LiF and NaCl crystals. Ravishankar University.

8. **Pal, Ranjit Kumar.** Application of the many-body theory to study the electronic properties of metals. Utkal University.

9. **Panda, Ananta Ram.** Interaction of composite hadrons. Utkal University.

10. **Purushottamudu, Rachabattuni.** Application of current algebra and PCAC to proton-antiproton annihilations. Andhra University.

11. **Raychaudhuri, Manika.** Electronic properties of *normal and superconducting solids* University of Calcutta.

12. **Sadhya, Sudipta Kumar.** Investigations on the properties of magnetised plasma. University of North Bengal.

13. **Shivaprasad, S.M.** The effect of deposition parameters on the transport properties of thin palladium and manganese films. Karnatak University.

14. **Sinha, Mithilesh Kumar.** Synthesis of distributed, lumped active networks and their pole sensitivity. University of Bihar.

15. **Venudhar, Y.C.** X-ray studies on thermal expansion and debye temperatures of some cubic solid solutions and thermal expansion of some non-cubic crystals. Osmania University.

Chemistry

1. **Ajay Kumar.** Partial purification and study of the properties of the invertases and their inhibitence in banana fruits. Kanpur University.

2. **Anita Kala.** Biochemical studies on the toxicity of certain industrial hydrocarbon solvents. Kanpur University.

3. **Ankalgi, Rajesaheb Fakharuddin.** Studies in fatty acids. Karnatak University.

4. **Basak, Amit.** Studies on the chemistry of cyclic compounds of some medicinal plants. University of Calcutta.

5. **Bellary, John Marian.** Studies in antibacterials. Karnatak University.

6. **Bhargava, Poonam.** Studies in acid and base properties and catalytic activity of some transition metal oxides and their mixtures with silica and alumina. Bangalore University.

7. **Biswas, Susantakumar.** *Chemical and biological studies* on lipids. University of Calcutta.

8. **Dalal, Adarsh Kikabhai.** Synthesis and characterization of ion-exchange resins. M.S. University of Baroda.

9. **Divakar, M.C.** Physico-chemical investigations of bimetallic complexes. Karnatak University:

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Earth Sciences

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Engineering and Technology

1. **Deshmukh, Shriram Tulashiram.** Study on heat transfer in fluidized beds. Nagpur University.

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BIOLOGICAL SCIENCES

Biochemistry

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Marine Biology

1. Anna Mercy, T.V. Monographic study of the fish, Horaglanis krishnai. University of Kerala.

2. Raju, Kalidindi Varahala. A taxonomic study of Sardinella spp., Teleoste L: culpeidae represented in the coastal waters of mainland India and a biometric comparison of Sardinellalongiceps Valenc Iennes 1847 from five localities. Andhra University.

Botany

1. Balachandran, T.K. Ecological studies on sunflower, Helianthus annuus Linn and Niger, Guizotia abyssinica (Ass) with emphasis on their productivity. M.S. University of Baroda.

2. Bishram, Rai. Taxonomic studies on the fungi parasitizing the forest vegetation of Terai belt of North Eastern U.P. with reference to hyphomycetes. University of Gorakhpur.

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5. Deshpande, Rekha Gajanan. Physiological studies in pulses of Maharashtra. Shivaji University.

6. Dube, Madan Chand. *Effects of gamma ray's on* morphology and embryology of Triticum aestivum L. var K-68. Kanpur University.

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8. Kumara Swamy, G. Experimental mutagenesis on certain members of solanaceae. Kakatiya University.

9. Roy Chowdhury, Joya. The influence of common bean mosaic virus infection on the growth and physiology of root nodules of mung bean, Vigna radiata (L) Wilczek. University of Gorakhpur.

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Zoology

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Medical Sciences

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Agriculture

1. Ghurayya, R.S. Studies on rate of nutrient uptake and dry matter formation in four high yielding wheat varieties at different stages of growth. Jawaharlal Nehru Krishi Vishwavidyalaya.

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RESEARCH IN British Universities Polytechnics and colleges: Government Departments and other institutions. V3. Social Sciences. London, British Library. (c 1980) xv, 401 p.

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3. **Lecturers** : Scale of Pay : Rs. 700-40-1100-50-1600. Age limit : Below 35 years.

Department of Architecture

1. **Professor of Architecture**—1 post.

Qualifications and Experience—Essential : (i) Master's Degree/equivalent Post-Graduate Professional qualifications of a recognised University/Institution in Architecture, and at least 10 years experience in professional/teaching/research work, in a faculty/responsible position, in Architecture, with abilities to conduct and guide research and/or undertake design/development work.

OR

Bachelor's Degree/equivalent professional qualification of a recognised University/Institution in Architecture, and, at least 12 years experience in professional/teaching/research work, in a faculty/responsible position, in Architecture, with abilities to conduct and guide research and/or undertake design/development work, and

(ii) Independent professional/published work of high standard.

Desirable : (i) Membership of the professional Institute of Architects; and (ii) Specialisation/research experience in certain areas/subjects in Architecture.

2. **Professor of Civil Engineering**—1 post.

Qualifications and Experience—Essential : (i) Master's Degree/equivalent Post-Graduate professional qualification of a recognised University/Institution in Civil/Structural Engineering; and at least 10 years experience in professional/teaching/research work, in a faculty/responsible position, in Civil/Structural Engineering, with abilities to conduct and guide research and/or undertake design/development work.

OR

Bachelor's Degree/equivalent professional qualification of a recognised University/Institution of Engineers, and at least 12 years experience in professional/teaching/research work in a faculty/responsible position in Architecture with abilities to conduct and guide research and/or undertake design/development work.

(ii) Independent professional/published work of high standards.

Desirable : (i) Membership of the professional Institute of Engineers; and (ii) Specialisation/research experience in certain areas/subjects in Civil/Structural Engineering.

3. **Lecturer in Urban Design—1 Post.**

Qualifications and Experience—Essential : (i) Bachelor's Degree/equivalent professional qualification of a recognised University/Institution in Architecture. (ii) Master's Degree/equivalent Post-Graduate qualification of a recognised University/Institution in Architecture/Urban Design/Town and Country Planning. (iii) At least 2 years experience in professional/teaching/research work in a faculty/responsible position in Urban Design/Town and Country Planning/allied field with abilities to conduct and guide research and/or undertake design/development work.

Desirable : (i) Membership of the professional Institute of Urban Designers/Architects/Town and Country Planners; and (ii) Specialisation/research experience in certain areas/subjects in Urban Design.

Department of Landscape Architecture

4. **Assistant Professor of Ecology**—1 post.

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Desirable : (i) Membership of the Professional Institute of Ecologists; and (ii) Specialisation/research experience in certain areas/subjects relevent to Landscape Architectural Design.

5. **Assistant Professor of Landscape Architecture**—1 post.

Qualifications and Experience —Essential : (i) Bachelor's Degree equivalent professional qualification of a recognised University/Institution in Architecture Landscape Architecture. (ii) Master's Degree/equivalent Post-Graduate professional qualification of a recognised University/Institution in Landscape Architecture. (iii) Independent professional/published work of high standard; *(iv) At least* 5 years experience in professional/teaching/research work in a faculty/responsible position in Landscape Architectural Design or an allied field, with abilities to conduct and guide research and/or undertake design/development work.

Desirable : (i) Membership of the professional Institute of Landscape Architects; and (ii) Specialisation/research experience in certain areas/subjects in the field of Landscape Architecture.

6. **Lecturer in Landscape Architecture (Design)** - 1 post.

Qualifications and Experience :—Essential : (i) Bachelor's Degree equivalent professional qualification of a recognised University/Institute in Architecture Landscape Architecture. (ii) Master's Degree/equivalent Post-Graduate professional qualification of a recognised University/Institute in Landscape Architecture (iii) At least 3 years experience in professional/teaching research work in a faculty/responsible position in Landscape Architectural Design or an allied field, with abilities to conduct and guide research and/or undertake design/development work.

Desirable : (i) Membership of the professional Institute of Landscape Architects; and (ii) Specialisation/research experience in certain areas/subjects in the field of landscape Architecture.

Department of Transport Planning

7. **Lecturer in Transport Planning**-1 post.

Qualifications and Experience - Essential : (i) Bachelor's Degree of a recognised University in Civil Engineering or equivalent (ii) Master's Degree of a recognised University/Institution in Traffic and Transportation Planning or equivalent; and (iii) At least one year teaching/research/professional experience in Traffic and Transportation Planning in a responsible capacity.

Desirable : (i) Master's Degree of a recognised University/Institution in Town and Country Planning or equivalent; (ii) Specialisation and research experience in Traffic and Transportation Planning or in Town and Country Planning, and *(iii)* Associate of Professional Society/Institution of Traffic and Transportation Planning.

Department of Urban and Regional Planning

8. **Lecturer in Planning** - 1 post (lien vacancy upto 15.9.84)

Qualifications and Experience - Essential : *(i)* Bachelor's Degree/equivalent professional qualification of a recognised University/Institution in related disciplines or Architecture Civil Engineering.

OR

Master's Degree/equivalent Post-Graduate qualification of a recognised University/Institution in related disciplines of Geography/Social Sciences Law etc. (ii) Master's Degree equivalent Post-Graduate professional qualification of a recognised University/Institution in Town and Country Planning. (iii) At least 2 years experience in professional/teaching research work in Town and Country Planning, preferably with aptitude to conduct and guide research and or undertake design development work.

Desirable : (i) Membership of the professional Institute of Town Planners; and (ii) Specialisation research experience in certain areas subjects in Town and Country Planning.

Department of Housing

9. ***Assistant Professor of Housing***—1 Post

Qualifications and Experience - Essential : (i) Bachelor's Degree equivalent professional qualification of a recognised University/Institution in Civil Engineering : (ii) Master's Degree/equivalent Post-Graduate professional qualification of a recognised University/Institution in Town and Country Planning/Housing; (iii) Independent professional/published work of high standard; and (iv) At least 5 years experience in professional/teaching/research work, in a faculty/responsible position, in the execution of housing programmes site development works within the physical planning framework, with abilities to conduct and guide research and/or undertake design development work.

Desirable : (i) Membership of the Professional Institute of Town Planners; and (ii) Specialisation/research experience in execution of housing programmes/site development works within the physical planning framework.

Department of Building Engineering and Management

10. Professor of Building Engineering and Management . . . 1 post

Qualifications and Experience - Essential : (i) Master's Degree in Building Science/Civil Engineering with subjects concerned with Building Engineering and Management with speciality in Functional Efficiency of Buildings. (ii) Full Membership/Fellowship of the professional Institute. (iii) At least 10 years experience in teaching/research/professional work. (iv) Professional publications of high standard.

Desirable : (i) A Doctorate in Build*ing Science concerning Building Acous*tics/Illumination/Thermal Behaviour of building materials. (ii) Ability to guide research independently. (iii) Experience in handling large size project in the field of bu*ilding industry*.

11 Assistant Professor of Building Engineering and Management—1 Post

Qualifications and Experience - Essential : (i) Post Graduate Degree in Civil Engineering/Structural Engineering Architecture Building Engineering & Management. (ii) At least an Associate Membership of a professional institution. (iii) At least 5 years experience in teaching research/professional work with emphasis on Building Services.

Desirable : (i) A Doctorate in subjects concerning Building Engineering and Management. (ii) Experience in construction at site.

12. Lecturer in Building Engineering and Management - *1* Post

Qualifications and Experience-Essential (i) Post- Graduate Degree in Civil Structural Engineering/Architecture/Building Engineering and Management. (ii) At least an Associate Membership of a professional institution. (iii) At least 3 years experience in teaching research professional work with an emphasis on Building Services.

Desirable: (i) Membership of a professional institute. (ii) Specialisation/research experience in certain areas subjects in Civil/Structural Engineering/Architecture.

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The prescribed age and qualifications are relaxable in case of candidates of *professional academic distinction. If* the Selection Committee is of the view that research work of a candidate as evident either from his thesis or from his published work or that the independent professional work of the candidate is of a very high standard, the Selection Committee may relax any of the prescribed qualification.

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Qualifications

1. *Essential*

I. An eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

2. Should have specialised in combustion Engineering.

II. **Desirable** : *Experience of teaching* to Post-Graduate Classes.

Readers

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3. Reader in Civil Engineering (Public Health). Department of Civil Engineering (Plan Post)

4. Reader in Civil Engineering (Foundation). Department of Civil Engineering (Permanent)

Qualifications

I. **Essential**: Good academic record with a Doctor's degree in the relevant field. About 5 years experience of teaching and or research and development.

Provided further that candidates not possessing Ph. D. may be considered if they have to their credit equivalent research published work or design/*development work of a high order either* in the institution or in an industry.

OR

In the case of persons to be recruited from industry on professional fields, candidates should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

II. **Desirable**: Published research work in reputed journals. Experience of teaching to Post-graduate classes.
Note : *For post Nos 3 and 4 only.*

The candidates who have applied for the posts of Reader in Civil Engineering (Public Health) and Reader in Civil Engineering (Foundation), Department of Civil Engineering in response to advertisements No. 42/80-81 and No. 16/81-82 respectively need not apply again.

Lecturers

Scale of Pay: Rs. 700-40-1,100-50-1,600/- plus allowances.

5. Lecturer in Mechanical Engineering Section, University Polytechnic (Temporary)

Qualifications

I. **Essential**

(a) Master's degree in appropriate field in Engineering/Technology/Mech. Engineering.

(b) Consistently good academic record with a Bachelor's degree in Engg/Tech. (Mech. Engg.) First class at Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic/research institutions.

Having regard to the requirements of emerging fields of Engg. & of developing interdisciplinary programmes, the requirements of Engg/Tech. degrees may be waived in the cases of otherwise well *qualified candidates.*

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired *professional experience within* a period of five years of his appointment, failing which he will not be able to earn future increments until he fulfils this requirement.

6. Lecturer in Chemistry Section, ZH College of Engg. & Tech. (Temporary) but likely to become permanent).

Qualifications

I. **Essential**

(A) A Doctor's degree or research work of an equally high standard in Chemistry.

(B) Consistently good academic records with first or high second class (B in the seven-point scale) Master's degree in Chemistry or an equivalent degree of a foreign University.

Having regard to the need for developing inter-disciplinary programmes the degrees in (a) and (b) above may be in relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate *possessing a Doctor's degree or equivalent research work* is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to *M. Phil. or equivalent degree or research work of quality*) may be appointed provided he has done research work for at least two years or has practical experience in a research Laboratory/Organisation on the *condition that he* will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

II. **Desirable**: Experience of teaching to B. Sc (Engg) Classes.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees) on payment of Rs. 2/- *in cash* (*to be deposited* in the Cash Section, Finance Office, AMU), or through an Indian Postal Order payable to the Finance Officer, AMU, either personally or by sending a self-addressed envelope of 23 x 10 cm. Last date for receipt of applications is **3-11-1982**. Incomplete applications and those received late may not be considered.

Mahmood Ali
REGISTRAR

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GURU NANAK DEV UNIVERSITY
AMRITSAR

Advertisement No. 10/82

Applications are invited for the following posts on prescribed form obtainable at a price of Rs. 2/- from the office of the Registrar by making written request accompanied by self addressed stamped envelope of 23 x 10 cms. so as to reach this office by **10-11-82** alongwith crossed Indian Postal Order(s) of Rs. 10/- for the posts at Sr. No. 1,2 & 5 and Rs. 5/-for other posts (not refundable) drawn in favour of the Registrar, Guru Nanak-Dev University, Amritsar.

Persons already in employment must send their applications through their employers. Candidates from within India may not be considered in absentia. Higher start in the grade may be given depending upon qualifications and experience.

The qualifications for the posts of Professors and Readers are as prescribed by the University Grants Commission.

1. Professors (*Grade* Rs. 1500-60-1800-100-2000-125/2-2500) (I) Sociology-1 (II) Mathematics-1 (III) Applied Sciences and Technology-1 (IV) Economics-1 (V) Political Science-1.

2. Readers (Grade : Rs. 1200-50-1300-60-1900)

(I) Biology-1 (II) Guru Nanak *Studies-1* (III) Job-oriented Courses (Temporary)-1.

3. Guru Ram Dass Post-Graduate School of Planning (I) Senior Photographer (Grade Rs. 700-25-850/30-1000/40-1200)

4. **Engineering Department (1)** Estimator (Grade Rs. 510-15-600/20-700/25-850/30-940.

Note : The persons who have already applied for the posts of Sr. Photographer and Estimator in response to Advertisement Nos. 4/81, 6/82 and 7/82 need not apply again.

5. Research Fellow in Physics-1 (Rs. 600-00 fixed p.m.)

Specialisation required for the post of Reader *in* Job-oriented Courses is indicated below.

Reader

1. Job-oriented courses (Temporary) (I) Oils Paints Textile Dyes Technology (II) Chemical Technology with specialisation in Oils, Soaps and Detergents of Textile Dyes and related areas (III) Chemistry of Oils, Soaps, Detergents, Dyes or Textile.

Qualification

For post at Sr. No. 3 Essential (I) Bachelor's Degree of a recognised University. (ii) Diploma in Photography (*iii*) *Five years practical* experience in all branches of photographic work in a photography studio of repute. Desirable: Experience of teaching training in the field of photography.

Sr. No. 4 (I) Certificate courses in Draftsmanship (Civil) (ii) Minimum two years experience as Draftsman Estimator, (iii) Knowledge of P.W.D. specifications estimation, costing schedule of rates and analysis etc.

Sr. No. 5: M.Sc. Physics Applied Physics with First Class and aptitude for research.

UNIVERSITY OF JABALPUR
JABALPUR
NOTIFICATION

No. Estt/82/4842 Dated : 15/9/82

The last date for receipt of applications for various teaching posts, published by this office advertisement No. Estt/82/4594, Dated 24.8.82, is hereby extended upto the **30th of October, 1982**

REGISTRAR

UNIVERSITY OF JAMMU
SITUATION VACANT

Applications on prescribed form are invited for the following posts so as to reach the undersigned on or before **15 November, 1982** :

1. **Professor** (Rs. 1500-2500) one each in University service and Instrumentation Centre, Departments of Hindi, English and Punjabi.
2. **Co-ordinator** (Rs. 1100-1600) (one post) and **Statistician** (Rs. 700-1300) (one post) in Examination Reforms Unit.
3. **Electronics Engineer** (Rs 700-1300) (one post) in the Department of Physics.

Note : The posts in Examination Reforms Unit are upto 31 March, 1985 for the time being.

Prescribed form and other details can be had from Sh. A.K. Sehgal, Asstt. Registrar (*Forms & Stationery*) *by sending* self-addressed envelope (25 cms x 10 cms) bearing postage stamps worth Rs. 4.00 alongwith crossed postal order of Rs. 10.00 drawn in favour of the Registrar, University of Jammu, Canal Road, Jammu (Tawi) - 180001, cashable at Jammu Post Office.

J.R. Rathore
REGISTRAR

THIRTEENTH NATIONAL PRIZE COMPETITION FOR PUBLISHED LITERATURE IN PHYSICAL EDUCATION, SPORTS, HEALTH EDUCATION, RECREATION AND YOGIC CULTURE ETC. 1982-83.

The Lakshmibai National College of Physical Education, Shaktinagar, Gwalior-474002 invites entries from publishers and authors of books published on the subjects mentioned above

Awards will be made as indicated below :-

		No. of Prizes
Category I	Prize of Rs. 5000/-	One
Category II	Prize of Rs. 2500/-	Two
Category III	Prize of Rs. 1500/-	Two
Special award for best production	Rs. 1000/-	One

Last date of receiving entries is 30th November, 1982.

For entry form with rules of the competition, please write to the Dean of the College enclosing a self addressed envelope of size 23 x 10 cm.

UNIVERSITY NEWS, OCTOBER 15, 1982 Regd. No. R.N. 7180/63 Postal Regd. No. D(C)-534

PUNJABI UNIVERSITY
PATIALA

Advertisement No. 24/SPS/PRO/Estt.

Applications are invited for the following posts :-

1. **Professor in Statistics** : (One)
Grade : Rs. 1500-60-1800-100-2000-125/2-2500.

Qualifications

An eminent scholar with published work of high quality actively engaged in research. Ten year's experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

2. **Readers** : (Two in Physics, one each in Sanskrit and Business Management in Marketing Area).
(Grade : Rs. 1200-50-1300-60-1900).

Qualifications

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

Specialization for Reader in Physics

Candidates should be theoreticians/experimenalists in any of the following fields :-

(a) Nuclear Physics/Radiation Physics
(b) Electronics
(c) Optics/Laser Physics
(d) Plasma Physics
(e) Solid State Physics.

3. **Lecturers** : (One each in Human Biology, French, Education & Community Services, Defence Studies, Sanskrit, Correspondence Courses (Religious Studies-cum-Punjabi) and two in Physics including one leave vacancy upto 3.3.83.
(Grade : Rs 700-40-1100-50-1600).

Qualifications

(a) A Doctor's degree or research work of an equally high standard; and
(b) Good academic record with atleast second class ('C' in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements

Specializations

Lecturer in Human Biology

1. Must have specialised in Social anthropology/sociology at post graduate level.

2. Should have sufficient knowledge to teach pre-historic Archaeology to the post graduate students.

Lecturer in Religious Studies-cum-Punjabi (Directorate of Correspondence Courses)

Candidate should be double M.A. i.e in Punjabi and Religious Studies.

Lecturer in Physics

Same as mentioned for the post of Reader.

4. **Curator in Botany** : (One)
(Grade Rs. 400-40-800-50-950).

Qualifications

At least High IInd class Master's degree in Botany from an Indian University or equivalent qualifications from a foreign university with either a research degree at doctorate level or about three years' Post M.Sc research experience. Candidates having experience of undertaking Botanical excursions will be preferred.

5. **Junior Research Fellow** (UGC) : (One in Botany)
(@ Rs. 600 - p.m. all inclusive)

Qualifications

Junior Fellowships is open to persons preferably below the age of 30 years, who have obtained a Master's degree of a recognised University in the first or high second division (with at least 55% marks or B+ in the seven point grade system).

6. **Research Scholars** : (One each in Sanskrit, Urdu and Bhagwan *Mahavira Chair for Jain Studies*)
(Tenable for two years in the first instance @ Rs. 600 - p.m. all inclusive).

Qualifications

Candidates should possess at least second class Master's degree with at least one year teaching/research experience after obtaining Master's degree provided that the condition of experience may be relaxed in the case of first class M.A.'s/M.Sc.'s provided further that a candidate with at least 55% marks both in B.A./B.Sc. and M.A./M.Sc. could also be considered in case no first class M.A./M.Sc. is available.

7. **Department of Botany (Plant Conservatory) Research Scholars** (One)
(Rs. 600 - p.m. all inclusive).

Qualifications

1st class M.Sc. in the subject of Botany with two years research experience. Persons having experience of undertaking botanical excursions in connection with their research work on wild plants in the field of Cytology/Taxonomy/Morphology will be preferred

8. **Research Scholar in Botany** (One)
(Rs. 600 - p.m. all inclusive), (for Project entitled 'Cytogenetics of Indian Forest Trees).

Qualifications

At least 1st Class M.Sc Botany. Those with specialization/research experience in Cytogenetics will be preferred. Candidates with two years experience in Cytogenetics will be given preference.

General

Candidates for teaching and research posts should possess working knowledge of Punjabi upto Punjabi Praveshka standard. Persons from outside Punjab could however be considered for appointment but they will be required to give an undertaking in writing that they will acquire the requisite qualifications in Punjabi within a period of two years.

Higher start within the grade admissible depending upon the ability and experience of the candidate. House rent and Dearness allowance, Provident Fund and Medical facilities according to the University rules.

Applications complete in all respects on the prescribed form accompanied by a crossed Postal Order worth **Rs 5/-** (**Rs. 2/-** for candidates belonging to Scheduled caste/tribes and Backward Classes) drawn in favour of the Registrar, Punjabi University, Patiala, should reach the University by **29-10-82**. The forms can be had from the Production and Sales Officer, Publication Bureau, Punjabi University, Patiala on payment of **Re. 1/-** by sending a crossed Indian Postal Order drawn in favour of the Registrar, Punjabi University, Patiala, alongwith a self addressed envelope of the size of 25 × 10 cms. stamped with 50 paise postage which should be superscribed at the top in bold letters REQUEST FOR APPLICATION FORM FOR THE POST OF......

Persons already in service should apply through proper channel. Those who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before the due date and regular applications through proper channel by **2-11-82**.

REGISTRAR

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University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH NOVEMBER 1, 1982

- Technical & Management Education
- Higher Education & Employment
- Syllabus Constraint in ELT
- Educational Encounter
- Seminar on Ageing
- CERN Research

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UNIVERSITY NEWS

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IN THIS ISSUE

Technical and Management Education 662

A Case of Syllabus Constraint in ELT 665

Convocation

Higher Education and Employment 667

Campus News

Seminar on Ageing at BHU 670

Freshmen Counselling at BITS 670

Seminar on literatures in translation 671

CERN Research 671

Regional science education seminar at Ranchi 674

Women Physical education teachers to be trained at NIS 674

Agriculture

Farm implements need careful testing 675

Strict seed act needed 675

New species of algal discovered 675

Research in Progress 676

Theses of the Month 677

Current Documentation in Education 681

Classified Advertisements 682

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M.S. Ramamurthy

Educational Encounter

G.B.K. Hooja*

Mr. George Mathew, in his article published in "Caravan" (May 1982) has produced a very lucid X-ray picture of what ails the University system. He has cited the cases of NEHU, Darul Uloom, PAU, AMU, Kerala University, Gujarat University, Delhi University, JNU, Universities of Rajasthan, Orissa and Uttar Pradesh and has highlighted the unrest and instability which shadows the University culture.

But it seems that right diagnosis, and therefore cure has eluded his grasp. According to him, campus politics is dominated by the activities of 4 groups—students, teachers, karmacharis and the Vice-Chancellor. May I in all humility, suggest that the Vice-Chancellor should be included in the category of karmacharis and that parents be added as the 4th group, which unfortunately has so far been ignored by most educational analysts, although it can and should play a significant role in restoring the health of the University system.

Undeniably this group is deeply interested in and is responsible for the financial support of the University system, directly or indirectly. In bypassing this potential group, a very valuable remedial instrument has been overlooked.

20 years ago I received the shock of my life when the Principal of a prestigious college told me that he did not know about the progress of my son. He would know a student's progress only if he came to his good or bad notice, for he said he was not expected to watch the progress of two thousand boys in his institution. Earlier, my son had been to the Mayo College, Ajmer, where Principal Gibson used to keep a watch over every student not only while he was at college but even after he had left the portals of the Mayo!

What is sadly lacking in the educational milieu today is the lack of systematic exchange of notes between teachers and parents in which category I would pertinently like to include the mothers.

Parents are interested in the welfare of their children. They invest all they can afford in their education and training. But under the present dispensation they are not kept in regular touch with the progress of their wards. The institutions which have adopted the system of notifying the progress of students to their parents have good record of discipline and growth to show. Of course, this is possible only if teacher-pupil ratio is reasonable and the students are divided into small groups and each group is placed under the full attention of a teacher, who is properly oriented. This is, in fact, the implementation of the *Guru-Shishya Parampara* of Vedic institutions, where the teacher was deeply and fully inte-

(Contd. on page 666)

**Vice-Chancellor, Gurukula Kangri Vishwavidyalaya, Hardwar.*

Technical and Management Education Vis-a-Vis Industrial Productivity

Text of the Keynote Address of Dr. C.R. Mitra, Director, Birla Institute of Technology, Pilani, to the Conference on Relevance, Adequacy and Effectiveness of formal and non-formal Technical and Management Education in achieving targets of higher industrial productivity, held at Calcutta recently.

"The theme of your conference makes the assumption that there exists a reciprocal relationship between technical and management education and industrial productivity. We might accept without debate the conclusion that such an inter-relation is desirable. Let us, however, examine in a few broad sweeps what is the existing situation in our country. It has been stated that we cannot have a much better educational system than the social context in which it is operating or that education cannot serve as a substitute for social and economic reforms. Since independence, an impressive linear growth has taken place, both in the educational system and in the industrial world. But it is difficult to discover to what extent these two phenomena have been mutually dependent and have drawn strength from each other. Indeed, one conclusion seems to be undisputed that even professional education has served primarily the function of a substitute for the hereditary privilege and the power of wealth that a traditional society bestows on an individual. In other words, the stamp of education has become largely a device for social climbing. Thus, circumstances were not propitious for this linkage between educational system and industrial productivity to have been institutionalised for mutual benefit, although need for the same has been recognized. I propose to establish the fact that such a linkage is indeed a necessary and sufficient condition for national development. From there I propose to go on to the suggestions as to what character this linkage should take. Let us recall the genesis of the university system as we know it today. It began its existence on the intended requirement of a society for specialized manpower for the church, the bar and the medical profession. It was sometime later that the university was also accepted as a manmade system where the pursuit of knowledge became a task by itself. This task encompassed all aspects of knowledge, namely, its generation, its codification, its application and its preservation. Now these are not compatible components. Naturally, these contradictions led to a duality of approach. Each university, several times in its life, has been caught in the cross-current of demands which in one extreme required pursuit of excellence in the company of the peer group and, at the other, required commitment to activities relevant to the world of work. Naturally, no university has ever been able to resolve these issues in absolute terms. Each has tilted to one or the other side depending on the dominant theme that society enforced. There is no evidence in history that any university has ever been permitted to pursue nquiry purely in its own image. It was always obliged to integrate the demands of the society in which it existed.

We, thus, see that an educational system, particularly in the fields of technology and management, cannot remain alienated from the world of production. The linkage between the two does not merely rest on the fact that one produces a manpower which is used by the other. There is a basic and more pervasive need that becomes minifest if we understand the theory of knowledge. Now knowledge is not a collection of information, but it is a tool to act upon the world more intelligently than it would have been possible otherwise. Thus, the dialectic relationship between theory and practice enforces a dynamic process where theory is concretised in practice and practice modifies the theory further.

There is still another important chain to this link. It is the generation of a new culture which can be achieved only when the two worlds come together and work together. There will be many more spin-off benefits. The first lesson each world will learn is not to make a caricature of the hallmark of the other. For example, by merely teaching a course on entrepreneurship the achievement of the industrial world cannot be captured. Similarly, by conducting a training programme, industry merely side-steps the issue.

Coming now to the issues of inter-relation between education system and industrial productivity, we have to perceive the true nature of this relationship. Education transforms and informs industry. Training precedes production and production, in turn, presages training. Education establishes an understanding of the productive process while the productive process offers a control of the means to generate greater wealth. Thus, it seems to me that education and production form an indivisible pair. In this connection it will be wise for us not to cling to traditional meaning of words like 'education' and 'production'. It is in this traditional connotation that we have attributed certain value tags to these words. For example, some of us might feel that one is more prestigious than the other. Let us remember that words derive meanings from their use and the original meanings get transformed. It is for us to perceive the strength this pair offers to the society and give the meaning consistent with the goal of creating correct linkages between the two. In the ultimate sense we have to ensure that there is a strong congruency between education and industrial production.

Having established that the educational system and industrial production cannot be separated, we now turn to examine how this is to be achieved. Thus, we face the problem of choice between available educational options. Before we analyse this further, let us describe the university system in the same framework as that of the industry. It seems to me that the university system can be looked upon as a production unit, designed to meet manpower needs of industry. Here we include under the definition of 'industry' all institutions where organised human labour is put to social use. Having brought the two systems within similar parameters we can now pursue the task of characterisation of the university product and attempt to measure its quality and reliability. The best that we can state at this stage is that the product of the university has the closest fit only with the requirements of the university itself. In other words, university has been content with the task of creating a product in its own image, with no obligation to strengthen the three chains of links described earlier. Industry, on the other hand, has never felt the need to properly and scientifically define the specifications of the manpower that it wants. It has also been content to look upon the university output as a new entrant to a new world together with its myths, values and urges about which no direct vision was acquired within the university system. If it has been otherwise in some cases, that was because of unguided chance. In principle, therefore, the mission that both the worlds have to undertake is to ensure that together they have to build up a human capital and a knowledge capital. In this joint mission both have to shed much of their traditional thinking and static approach. New linkages have to be forged to deliberately create a dynamic model so that a new process is enforced which continuously redefines the specifications of an educated professional as well as the contours of knowledge. The task is made very difficult because we live in a society where the process of development tends to differentiate and create pockets of privilege. Even the point of reference, more often than not, exists outside our own objective setting. Thus, the nature of the university product is sought to be measured by the standards of the Western World. Higher industrial productivity is sought to be measured in terms of higher profit and not through the higher aggregate competence, self-generated and self-perfected. It has to be realised that both the systems have a stake in creating new circumstances so that a dynamic model can be designed and worked out as a part of our daily involvement. Further, the co-existence of the third largest university system with one of the largest percentage of illiteracy on one hand and the co-existence of the most modern industrial production techniques with the most primitive is a fact of our national life. Thus, the techniques derived from a society which is more homogenous simply would not work. If the aim is to accept the reality and nevertheless work towards the modernisation of the society, our analysis and perception must acquire new originality so that we are able to continuously discover new techniques of reaching our goals. We have to emerge from the state of endless present into the future. Let us not entertain the futile exercise of precisely defining the future. Where existence is in simultaneity, the content of the future and the validity of the process will reveal only in the effort of attaining the goal.

Quite often we concede that there is a need for change but plead that the cost of progress is too high. But have we ever estimated the cost of conservation? It seems to me that the forward retention of custom is as turbulent a thing as an innovation. Our obsessive concern for a state of harmony and non-conflict makes us shy away from the responsibility of actions through which surely some would be unhappy but many more would be happy.

It may be seen that I have not attempted to go into micro detail of the nature of courses to be taught, the kind of relationship to be formalised or what financial and legal supports are to be first created. It seems to me that these are the details which must follow the involvement in a new task. I shall, however, be less than honest if I do not describe with a certain degree of pride and achievement, the broad features of the linkages that my university has established with the world of industry during the past decade.

BITS is a university which awards degrees at all the three levels, namely, undergraduate, postgraduate and doctoral. It is fully privately supported and its scale, its complexity of operation and its involvement goes beyond pure engineering. We include within our ambit Physical and Biological Sciences, Pharmacy, Management, Economics, Languages, Computer Science, Instrumentation and Science and Society. Even though it is privately supported, it enjoys far less access to easy funds than most universities. It also had its share of foreign collaboration. More than a decade ago, a review was made to determine the broad directions in which the Institute should set its tasks. The choice was between: (i) a cosmetic change; (ii) a massive input of men, money and material to flush out the traditional with a view to create an island; and (iii) a search for a self-reliant model consistent with the Institute's heritage and the perception of its goals within the given financial constraints. After much debate and clash of ideas the Institute was obliged to choose the third alternative. One important reason why the Institute deliberately sought out the world of work was that in the search for a new model a point of reference had to be established, not only to measure standards and performance but also to ensure that an inverted ivory tower did not create a cesspool. The most straightforward description of the situation would be that every student of the Institute, if he so chooses, will spend a total of eight months during the 4-year programme, outside the campus and within the settings of industrial production and would be engaged in the problem solving process of education under the direct supervision of his teachers who reside in the industry. The choice of problems and their treatment through projects were not ever done with an idea that the university knew better and would teach a few things to industry. The projects, even when they always originated from the industry, were entirely handled as a vehicle for education and training for the students and as an instrument for providing the faculty a deeper insight and involvement within the industrial culture.

The above methodology is described as the 'Practice School Programme' and today it includes all disciplines of Engineering, Sciences, Social Sciences and Languages. The fundamental urge for designing this innovation came from the perception and conviction of BITS. In a nutshell it is described thus: all education is ultimately for a profession and for gainful employment and such an education will remain impotent and book-tired if atleast some part of it is not done in cooperation with industry. Recently, another programme has emerged which we call "Collaborative'. In this case the promptings primarily come from the world of work which has concluded that there is need for a continued manpower development and this can be only effectively done through joint efforts with a university. At this present stage this programme is confined at the postgraduate and doctoral levels and has attempted to design a curriculum on the basis of broad functional requirements of industry rather than the vertical proliferation that each discipline seeks to achieve when a university department feels no obligation to be involved with the world of practice.

It is not my attempt to sell you these two important innovations of BITS. I hope I have been able to give you sufficient glimpse to conclude that change works and industry cooperates.

I now come back again to the issues of productivity, quality and reliability in the context of a university system which produces manpower for the nation. You will agree with me that none of these factors can be assessed and understood without reference to the world in which use of university education is made with specific expectations. I am convinced, more than ever before, that a university which establishes such linkages can neither become a purely service appendage to industry nor can it attain the impotence of isolation.

In your list of items you have also mentioned formal and non-formal education. I would like to suggest that the meaning of these words have to be more precisely examined in the context of our own society rather than impose the meaning and import from outside our education system. We seem to forget that numberwise a vast bulk of graduating students come from affiliated universities. The historicity, the style of operation, formal procedure of examination and evaluation generally tend to corrupt any new thoughts of non-formal education that we introduce in our country. I prefer to define the non-formal education in terms of social objectives rather than in terms of university objectives. Society is multi-disciplinary and does not necessarily need the tag of a degree. On the other hand, university is discipline-oriented and must always label its product in terms of a discipline or, reluctantly, in terms of an inter-disciplinary area. I have an apprehension that introduction of non-formal system, if the same is left to the university to implement, will only result in a linear extrapolation of the present system with strong populist overtones. It would be better to define first the social or professional goals and then to establish rational and cogent arguments why the non-formal method is more justified. Personally speaking I am satisfied that there are vast oceans of manpower which need to be trained and educated and the formal system is simply not capable of stretching itself. It will be absurd to hope that literacy can be imparted only through schools to be established; that retreading of manpower engaged in productive labour can be achieved through existing schools or colleges either through correspondence courses or through temporary sojourn at these places of learning; that the gross national product can be committed overwhelmingly for education; that there are sufficient number of people to act as teachers for all the people who have to be trained. After all, a society makes these decisions not on a-priori assumption but on the basis of heirarchy of options and deliberate choice.

I have attempted to focus attention on several issues. I have not offered to suggest any solution. It is my conviction that during the next two days of deliberations, we will be able to clarify basic concepts and return wiser than what we were when we arrived. Let us shun the temptation of spelling out details of techniques and methods. They will emerge as we join the task with necessary clarity of thoughts." □

UNIVERSITY NEWS

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A Case of Syllabus Constraint in ELT

R.K. Singh*

A good syllabus, written after due consideration of students' needs, is vital in ELT practice. It is inclusive. self-sufficient, self-explanatory and complete in respect both of scheme of study and examination. I have given the example of an inadequate syllabus followed in a reputed technical university and suggested an alternative model to discourage mindless, pointless and empty teaching.

It is now a well established fact that an effective management of language teaching entails a proper understanding of the learners' language *needs*, i.e. what and how they require to communicate with each other, at what level, and whether in speech or in writing. Apart from information on factors like *sociolinguistic setting, local circumstances, government's policy*, and management at departmental and institutional level, a knowledge of their educational back-ground, aspirations and attitude to language learning and teaching, and their expectations of an English class is equally vital for a meaningful language planning. An analysis of the learners' professional and social language needs, demands, requirements, expectations, and use (both present and future), as also an analysis of the target situation, is preparatory to language teaching *plan* (i.e. statement of goals etc.) and *planning* (i.e. the process through which particular programmes are implemented with provision for *receiving* feedback) which ought to be reflected in the syllabus.

But despite sophisticated advancement in ELT techniques, including the *needs analysis* which primarily establishes learners' needs to establish the *objectives*, many institutions continue to be far from planning and/or following a comprehensive students' need-centred, realistic, and productive English syllabus.

I happen to have experienced (and continue to suffer) the inadequate syllabus as a serious constraint in ELT practice. A good syllabus usually sets the tone of the course it defines. It sets out the basic *framework* of students' needs, problems and expectations for teachers. It also sets goals and defines possible ways of reaching these goals within the given administrative and human environment. It is inclusive, self-sufficient, self-explanatory, and complete in respect of both of schemes of study and examination. However, since it relates the present to the future, both for the teacher and the taught, it is *some thing which exists in the real world and is* subject to the constraints of the real world.

In a situation of my experience, I have found that there is no systematic relationship between teaching techniques and syllabus design and content. There is hardly any attempt to balance which is needed and what is possible. I have also seen quite a few syllabuses which fail to accurately define what is needed, nor do they design what is needed as realistically as possible.

If I could give an intuitive view, in Indian situation, particularly at the Indian School of Mines, the overall approach for students of earth and mineral sciences and engineering courses at tertiary level has to be *remedial*, with the aim of developing writing and reading skills, i.e. students should be able to use normal English — undertstandable, appropriate in expression and syntactically correct—and read and comprehend their subject texts effectively. In fact the need for developing communicative skill *for writing abstract/synopsis*, project report, thesis, academic papers as also for dissemination of general/specific knowledge of technical subject matter through simple, readable language has already been recognised the world over in Institutions of Sciences, Technology, Agriculture etc.

Now if an English language teacher is given syllabuses such as the following (which is written and planned by people at the helm of affairs, and ratified by august bodies like the Academic Council etc.) to teach English language, who could be blamed?

"English (HSS 101) L T P
3 1 0

English paper will comprise a textbook, from which selected topics*will be prescribed for this semester. There will be also questions to test the candidates power of expression in English and includes tests in essay writing, exercises in the orderly arrangements of words and thoughts and questions on applied grammar.

Test book prescribed—
Perspectives by Ed. Vasudevan and Sathya Babu (Orient—Longman)
The following grammar book is prescribed—
A Remedial Grammar for Foreign Students by F.T. Wood (Macmillan)

This is a typical off-handedly planned syllabus without keeping in view the students for whom it is intended, their needs and background. The textbook (*Perspectives*, an anthology of modern English Prose) has no connection with their previous knowledge and/or future needs; the syllabus has no specification of aims and objectives, has no clear direction either for the student or for the teacher. And how can a qualified English teacher, who is not tolerated to play any role in preparing the syllabus for his students, draw his teaching plan? I have often experienced that people with no sensibility for student-oriented teaching or appreciation for student's needs, constantly refuse to chop off the dead wood to enable learners to assimilate essential linguistic knowledge in an easy and effective manner. ELT itself is the victim in that the department conspires to debase English language teaching.

In an Indian technical institution, where students get admission on the basis of their success in an all-India entrance examination held every year in English medium and with English as one of the papers, it may be agreed that their preparatory English language learning is generally complete, as they have also already passed their Intermediate or 10 + 2 level

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courses. As I have discovered, most of such students have secured 50% or above marks in Intermediate or 10 + 2 English examination and have a workable knowledge of English. But at no stage of their early education are these students exposed to scientific/technical writing—the basis of their success or failure—which is of some professional value to them as future engineer. Therefore, in their tertiary courses that are subject-centred or professional, they have to be provided an opportunity to improve and continue their skills instead of allowing inadequate English to impede their progress, and thereby encouraging a large scale wastage of educational resources.

In place of the above inadequate syllabus, I propose that the following syllabus may be adopted:

SYLLABUS FOR FIRST SEMESTER OF B. TECH. COURSE

The syllabus for First semester of B. Tech. (June-November) proposes to teach students skills of writing clear, correct English.

It aims at preparing them to independently read, understand and reproduce in their own words the materials of science/engineering as also to develop an awareness for appropriate style, structure and cohesion.

The course comprises lectures and tutorials (3+2?) to teach them ESP skills through the following:

1. *Remedial Grammar*
    - (a) Use of articles in technical language
    - (b) Subject-verb concord in a technical context (Countable/uncountable nouns, phrasal quantifiers like one of, some of, etc., subject-pronoun concord)
    - (c) Use of prepositions (like in, on, at, over, above, below, under, beyond, in front of, behind, inside etc.)
    - (d) Use of Impersonal passive voice
    - (e) Use of relative pronouns
    - (f) Practice in linking devices (joining, shortening, editing sentences and paragraphs)
2. *Expository Writing*
    - (a) Idea structure in sentences and paragraphs
    - (b) Language of formal/informal instruction
    - (c) Language of formal/informal reporting
    - (d) Describing things
    - (e) Describing processes (*Rhetorical functions:* Definition, exemplification, classification, comparison and contrast (model), cause and effect, generalisation and qualification (deduction and induction), interpretation, use of tables, graphs and data, supporting an argument, expressing reservation (with degrees of certainty) and drawing conclusion).
3. *Note making and its development in description*
    - (a) How to be brief, accurate and clear
    - (b) Taking down main ideas and supporting ideas
    - (c) Abbreviations, signs and symbols, and numbers.

There will be two or three class tests besides tutorials to regularly monitor students' learning progress. At the end of semester, there will also be a written examination.

Recommended books.?

In terms of this syllabus, an ideal textbook should be a blend of Reading and Writing. However, the teacher may select an appropriate textbook or use his own materials to develop writing skills *a la* the above syllabus, which, I hope, generally meets the *needs* of students in a technical university. □

Educational Encounter

(Contd. from page 661)

rested in the holistic growth of the pupil and was interested in his career.

To make this scheme a success, it would be necessary to run short orientation courses in recognised Universities and colleges for 10 lakh teachers operating in the educational system. However, before this can be done, it would be necessary to design and run courses for trainers' training. This task, in the fitness of things, could be entrusted to the NCERT.

Take for instance, the analogy of the Army. It runs hundreds of short term courses for the orientation of its cadres. While courses are being run for improving the system of teaching in various subjects, one hardly hears of courses for the development and dissemination of pedagogy or the art of paternal care which are of paramount importance in the disturbed and pathological conditions prevailing today. If we are serious in our desire to mould the behaviour pattern of our students, we must first attend to their moulders, the teachers and the parents, not excluding the mothers.

Side by side steps will have to be taken to de-emphasize the value of degrees and divisions so that the hunt for degrees and therefore the urge for entry into the Universities/colleges is minimised. As a preliminary step, it would be desirable to introduce craft/vocational training at the middle school level as a compulsory subject so that by the time a student passes his Higher Secondary, he has acquired reasonable proficiency in some craft and may be usefully absorbed in the economic stream with financial aid from a Bank or otherwise.

As at present the universities have become the waiting halls for the unemployed and the unemployable and since a degree is an obligatory condition for entry into various government jobs, the students try to secure a degree by fair means or foul and this is why the examination system stands vitiated.

In order to implement this proposal it would also be necessary to do a bit of home work on the part of Public Service Commissions and the Government departments.

They must undertake a series of excercises so as to review the lists of services and jobs for which a degree should be necessary. As it is, the Armed forces recruit their officers after the higher secondary stage and are none the worse for it. Why cannot the Civil and Commercial services and other Governmentalised institutions do the same?

Thus alone the Universities will resume their proper role of being seats of higher learning and the elements who climb the University wagon for a jaunt and are not serious in prosecuting their studies, shall be prevented from standing in the way of serious scholars. □

Higher Education and Employment

Excerpts from the convocation address delivered by Shri L.K. Jha, Chairman, Economic Administrative Reforms Commission, at the University of Kashmir, Srinagar.

"... In the days when higher education was the privilege of the few, to get a degree was to be assured of a job. I recall a time more than 30 years ago when I found but few graduates in Kashmir, most of them having obtained their degrees from Aligarh or Lahore, and they were all reasonably well-placed in life. Today, with two universities and an increasing number of colleges conferring degrees, the problem of unemployment among the educated has assumed serious proportions.

Educationists often argue that education is an end in itself. But for parents no less than the students themselves, learning is but a means of earning. Much of the unrest in the campus is due to the sense of frustration among students, as they look ahead to a bleak future after completing their studies. Such turbulence is the least in institutions whose students feel more secure about their future, such as medical colleges and technological and management institutes, where the number of admissions each year is strictly limited.

Surely, the situation calls for rethinking on many different plants. Governments must ask themselves whether they are not spending disproportionately large sums of money on higher education. Educationists must re-examine the courses of study which the universities provide and try to make them relevant to the needs of the community, so that society as well as the students benefit from the education. And those with degrees must also pause to consider whether their own approach to employment is the right one.

State Governments are not flush with finance. The education budget is inevitably a tight one. The promotion of higher education is often at the expense of primary education. While the country as a whole can boast of having the world's third largest scientific personnel, we also have the largest number of people who are illiterate. There is a clear case for reversing the priorities in the allocation of funds, between schooling on the one hand and college and university level education on the other. Unfortunately, there is a strong popular pressure for more colleges. An area in which there is no college feels that its children are being deprived of the opportunity of getting a government job, because a degree is the minimum qualification for a wide range of posts under the Government.

I feel that this nexus needs to be broken. It originated in the days our imperial rulers wanted bureaucrats to have a good knowledge of English which a degree could ensure. In Britain itself, and indeed in many other countries, a degree is not a prerequisite for high official posts. It would in my view be much better if recruitment to Government service was made after the +2 stage which would be at a relatively younger age. Thereafter, the successful candidates could be given higher education of a nature which would be useful for the discharge of the responsibilities they would be entrusted with. At present, it often happens that someone with a high degree, say, in a science subject or in a classical language, gets into government service only to find that all that he has studied for years is of no practical use to him. Would it not be better for an administrator to understand the history, the politics, the economics and the actual problems of the State in which he is serving than to have specialised in a subject which has no relevance to his responsibilities? Recruitment after the +2 stage would enable Government to provide higher education to the successful candidates in subjects which would be of real value in the tasks that will be assigned to them.

After such selection for government posts has been made, the students who pursue higher education will do so not with a view to become eligible to sit for examinations conducted by the Public Service Commissions, but because they have an academic bent of mind and are genuinely interested in the subject. Others will take up vocational or technical courses. And some will decide not to go in for higher education at all. In consequence, the pressure for admission in colleges will be greatly reduced and more funds will become available for the fight against illiteracy.

Whether or not such a change in the recruitment system is made, I believe, the traditional patterns of education imparted in our colleges and unversities need to be modified. Those who formulate the syllabus of studies for degree courses must ask themselves to what kind of use would the knowledge acquired through the course be put, also what can be done to enhance the utility of the course in helping students to earn a living. Only through appropriate changes in the curriculum can the links between the educated and the society they live in be strengthened, and a much better alignment achieved between the output of the educational system and the capacity of the economy to make full and proper use of the educated.

If we look at the world, we find that knowledge which comes from education is the main factor in making some nations rich while its absence accounts for the poverty of others. What saddens me is that the young men and women who receive their degrees each year turn out to be job seekers, while they could with a different kind of education bring prosperity to the people and in the process enrich themselves as well. Let me illustrate my point by giving a few examples of ways in which higher learning can contribute to economic prosperity. The Kashmir Valley derives a good income from the sale of apples in the States which do not grow them. This income has been rising with the application of knowledge to grow better varieties of apples, save them from diseases and market them in an organised manner. But the soft fruits, the strawberries and the peaches are still not being sold in the warmer parts of the country because techniques of packing them and transporting them in a manner which would preserve their freshness are not there. It is for the educated to discover ways of removing these obstacles.

Similarly, the trout is a much prized fish which is found in Kashmir. But its supply is so limited that fishing is regulated by licensing, and it is not possible to buy trout anywhere. In other parts of the world where the trout thrives, not only is there enough for purposes of sport and local consumption, but the catch is sold in markets far and near. This kind of transformation requires the harnessing of science to the welfare of the people. Why cannot science students be made the instruments of such change to transmit the scientific culture to contribute to the progress and prosperity of the State?

Turning to arts subjects, a similar orientation can be attempted. The study of Arabic is of an advanced level in this University India's economic, political and cultural ties with the Arab world have been growing very fast. Indian business houses can make use of young men with adequate knowledge of Arabic, provided they have also some understanding of business and trade. A subsidiary paper in Commerce for those who study Arabic, or an optional paper in Arabic for those who study Commerce, can enhance the employment prospects of the students who take them up.

I have spoken so far of what the Government can do and what the educationists can do to forge healthier links between education and employment. Even more important than any changes in the system, which would anyhow take time, is the need for a reorientation in the thinking of the educated, those who like the youngmen and women present here today have taken a degree and are going to be on the look out for employment. There are two misconceptions which they must firmly reject.

Firstly they should not believe that those who are educated do not work with their hands; that they must have a chair and a desk as a base for their operations. Such a tradition grew at a time when only a few people were educated and most economic activities were carried on in a primitive fashion by workers who needed no education. If we look at the developed prosperous countries of the world, we find that every job is performed by people who are educated, and because they are educated they produce more and earn more. With the proper application of the knowledge which comes through education, there can be a general improvement in productivity. Out of the soil larger crops can be raised. The produce can be enriched and sold at higher prices. On the other hand, when people without adequate education and the skills that go with it operate modern plant and machinery, the community gets much less out of them than it is entitled to expect. You may have power plants but not power. Every economic activity becomes more rewarding if it is carried on by people who are educated, who can understand its nature and can even improve upon it.

Secondly, while it is natural that when you go out of the university you should start looking for employment, please do not make the mistake of looking out for an employer. As men of education and vision, you should not be job seekers but job creators. The concept that to be employed, you must become an employee is at the root of much of the frustration of our youngmen and women who have had the benefit of a costly education. Employment is what enables you to earn by making use of your time, training and talent. With these you can produce the goods or offer the services which people need and derive an income for yourself in return. When an employer engages you, he does so because he expects to earn more by using your services than he would be paying you. To this general principle, there is only one exception, namely, when you become a government servant. Then you get paid whether you do anything useful or not. But in all other cases, the employer gets more by employing you than you do. Would it not then make sense to try to be an employer and not an employee?

In order to identify the opportunities of self-employment, you have to keep your eyes and ears open. What are the things for which there is an unsatisfied demand which you can meet? Can you produce them? No doubt, production needs finance with which to buy the equipment and the raw materials. Fortunately, banks have been told to give priority to loans to the self-employed. The State Government has its own machinery to help small scale industries. Individually or as a group of three or four university graduates can start producing whatever they judge will have a market and in which they themselves feel interested. They could be fruit porducts or handicrafts products or electronic goods. Indeed, one of the weaknesses in the handicrafts sector of this State is that the tremendous skills which exist are used only to produce traditional goods such as were popular 30, 40 or even 50 years ago. Can papier machie products not cater to new tastes and new needs? To answer this question, one would need to study what kind of things are presently in vogue and whether they can be made of papier machie. If you look at the office equipment or cigarette cases or even vases made of papier machie, you will find that their designs are not in tune with contemporary requirements. If you can induct new designs, it would not only benefit you but also give new life and more income in this area.

These are but examples. Once you start looking out for possibilities you can spot hundreds of them. With good education, you have the vision and the capacity to do so. Do not succumb to the temptation of finding a secure job. It is only through the spirit of adventure and innovation that the human race has made progress. What has given man superiority over the animal kingdom is not his brawn but his brain. Through his intelligence he learnt to grow food instead of eating what is naturally available, to build homes instead of seeking shelter in caves or under trees. He used tools to add power to his elbow. And today those who have benefitted from university education have the opportunity and the responsibility to bring new ideas and new technology to transform the life of the people, to enrich the community as a whole..." ☐

Indian school of Mines

DHANBAD-826004

Adv. No. 420004/82-Estt **October 14, 1982**

Indian School of Mines, Deemed to be a University under the UCC Act, invites applications for the following posts :

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NOTE : The post was earlier advertised under the designation of Development Officer. Those who have already applied for that post need not apply again.

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AGE LIMIT : Not more than 40 years for posts Nos, 1 and 2, 30 years for post No. 3 and 25 years for post No. 4. Relaxable by five years for SC/ST candidates. Age limit also relaxable in the case of persons otherwise considered specially suitable.

GENERAL : Other things being equal, preference will be given to SC/ST candidates.

Further details and prescribed application forms are obtainable from the Registrar, Indian School of Mines, Dhanbad 826004, on sending a self-addressed envelope of size 30 cm x 12 cm affixed with postage stamp of the value of Rs. 4.05 only. Completed application forms should reach the Registrar on or before **29th November 1982.** CANVASSING IN ANY FORM WILL BE TREATED AS A DISQUALIFICATION.

S. P. Varma
REGISTRAR

Campus News

Seminar on Ageing at BHU

(From Our Correspondent)

The three day conference on 'Ageing' concluded with an appeal to survey the old age diseases in the country, inclusion of Gerontology in the curriculum of medical sciences, Life Sciences, Social Sciences and Psychology and training of para-medical staff, nurses and social workers all over the country. Once the scientific basis of ageing was known ways can be devised to postpone the onset of ageing. Consistent with this the following recommendations were made:

Various animals should be used as models to study ageing. Geriatrics as a Medical discipline should be given greater emphasis. A survey of the social, psychological, economic and housing problems of the aged should be made, and the ways of engaging the old people in useful and productive work depending on their expertise should be found out.

Prof. M.S. Kanungo was elected President of Association of Gerontology (AGI). Prof. Venkoba Rao donated Rs. 5000/- for three prizes in the three areas: Socio-Psychological, Biological and Medical. Next conference shall be held at Tirupati in 1984.

Dr. MacFadyen, WHO Director-in-charge of Ageing gave a detailed account of the position and problems of ageing. Prof. Schmitz-Scherzer, Treasurer, International Association of Gerontology from Bonn presented his paper on Psychological and Medical studies of old people in West Germany. Dr. M.W. Schein (USA) spoke on the Behavioural changes in birds during ageing. Dr. Maciera-Coelho of France talked of the changes that occur in the genetic apparatus of the cells when they age.

A very wide spectrum of the problem of ageing was covered in the 3-day conference beginning from the levels of the gene to cells to organs and to body and the influence of environment and stress on mind and body in the aged through the 3 Guest Lectures, 8 symposia papers and 15 free papers presented under Biological, Medical and Socio-psychological aspects of ageing. Dr. K.N. Udupa spoke of the influence of Yoga on the physiology of the body and its usefulness in postponing ageing. Prof. Venkoba Rao's talk on the teachings of Gita on ageing added a rare dimension to the conference as they synthesised our past culture with the present scientific know-how. Data on social and psychological problems of the aged studied in rural and urban areas of the country were presented and the measures to be taken to meet these problems were discussed. The medical scientists presented detailed electron microscopic and physiological information on the changes that occur in various organs during ageing. The Biologists presented data carried out at molecular, subcellular and cellular levels in various organisms including rat, monkey, insects and plants through their biochemical and physiological studies. Attempts are already being made to slow down the changes as the animals age using hormones and other chemicals.

The conference took a major step forward in a long neglected area. It was pointed out that even though several nations sent strong delegations to the United Nations meeting of the "World Assembly on the Elderly" in Vienna in July-Aug. 1982, our Government sent only a two-man delegation of officials who are not professional Gerontologists despite the fact that the Government was aware of the existence of a broad-based, multidisciplinary Association of Gerontology in the country. Several Gerontologists of other countries including those from developing countries were well represented in the Vienna congress. It is high time the Government wakes up and takes measures to meet the problem of ageing before the nation is engulfed by it.

The Association also elected Prof. Venkoba Rao (Madurai) and Prof. M. Hasan (Aligarh) as Vice-Presidents. Dr. S.N. Singh (B.H.U.) Dr. (Mrs.) C. Dave (Bombay) and Dr. (Miss) B.S. Gandhi (BHU) were elected as Secretary, Jt. Secretary and Asst. Secretaries. Dr. M.K. Thakur and Dr. Manjula of BHU were elected as Treasurer and Editor. Prof. P.V. Ramamurty (Tirupati), Dr. R.M. Bhat (Bombay) and Dr. S.P. Sharma (Amritsar) were elected as Council members.

Freshmen counselling at BITS

(From Our Correspondent)

A senior student of the Birla Institute of Technology & Science, Pilani, Sri Kannan Pashupathy, has brought together several students who have volunteered to help freshmen with their 'Problems' which could be anything from frustration over a badly made time-table to emotional upheaval. According to Sri Pashupathy though they would like to give their help over the entire spectrum, owing to lack of competence, are restricting themselves to the left end yet.

The genesis of the group can be traced back to the decision about a questionnaire circulated last year amongst BITSians regarding the formation of a Counselling Unit which would deal with the variety of problems, students face in a rigorous and challenging academic environment at BITS. This could be anything from poor performance in courses to problems of loneliness. As an outcome of his discussions with professional organizations and similar units on other campuses, Sri Pashupathy had to modify his approach to the implementation of the idea. With the enthusiastic support of Dr. B.M. Mithal, Dean Student Welfare Division, he successfully set up an informal group of students who have volunteered to help. At present the group provides help only to freshmen, since they believe that if an impact can be made in the formative years, there may be no need for problems to arise later.

Five students from each freshmen hostel have so far been introduced to this job. From the response to a questionnaire circulated amongst first year students it has been found that an overwhelming majority are willing to help next year since they realise the need and usefulness of such a service. The ultimate objective is to develop the service in such a way that it becomes competent to handle any problems of students and provides a wide range of personnel services and begins to function like a career counselling unit. The current members of the group have had a series of informal discussions with senior officers of the Institute in order to derive benefit from their experience and are hoping that within a few years the small group would expand and be able to provide service to the entire student community, thereby making it a culture by itself, so essential for the proper development of an individual confident enough to face the vicissitudes of real life.

Seminar on literatures in translation at LU

A three-day UGC sponsored National Seminar 'Academic Relevance of Literatures in Translation' was recently organised by the Lucknow University.

Inaugurating the seminar, Mr. Amrit Lal Nagar, a noted author observed that bilingualism was a myth and as such translations have to be addressed to those who did not understand the language in which the literary piece was originally written. He urged the scholars to divert their energies to this task, so that literary sensibility was strengthened.

Annual workshop of Institute of Agricultural Sciences, BHU

Prof. Iqbal Narain Vice-Chancellor, Banaras Hindu University paid his homage to the great founder of the University Mahamana Pt. Madan Mohan Malviya who actively participated not only in National struggle but has had a sharp vision for nature of construction after Independence. He has given us a seat of learning like BHU which hasa wide role for reconstructing the country.

Inaugurating recently the 16th annual workshop organised by the Institute of Agricultural Sciences in collaboration with the All India Coordinated Barley Improvement Project (ICAR), Prof. Iqbal Narain said that the delegates should keep in mind that Barley is widely used by poor. If we increase its production we help the poor. He stressed the need to adopt our own means and resources according to the need and circumstances of our soil. The variety of growth pattern should be dependent on our own resources.

The coordinator of the project (ICAR), Sri Maha Balram Singh, said that the eastern region is an undeveloped area. Being the traditional University, B.H.U. can play a vital role for the development of this area. He informed that I.C.A.R. has given 5 centres to the Institute of Agricultural Sciences for research work in different areas. He congratulated the University for the development of prestigious Malviya wheat and hoped that some more varities would be developed by the University in near future.

Prof. Mahatim Singh, Convener of the workshop, while highlighting the role of the Institute said that Institute of Agricultural Sciences is the only institution in the centre of several agriculturally underdeveloped districts of Eastern U.P. and Western Bihar which is capable of providing institutional support to the development of agriculture in this backward area. Towards meeting the lofty needs of combining culture and knowledge of most advanced west and east, we have the combination of most developed ICAR research projects and least developed one, he said.

Seminar on biological and cultural variation in man

A Seminar on Biological and Cultural Variation in Man under the Directorship of Professor B.M. Das, Head, Department of Anthropology, Gauhati University, was organised by the Department of Anthropology, Gauhati University from 12th to 14th October, 1982. The Seminar was sponsored by the University Grants Commission. Altogether 50 participants from parts of North Eastern India and the rest of India participated in the Seminar. There were four academic sessions which included a session each on Prehistoric Archaeology, Social & Cultural Anthropology and Physical Anthropology.

The Seminar was inaugurated by Professor J. M. Choudhury, Vice-Chancellor, Gauhati University. Dr. S.C. Tiwari of Delhi University was the chief guest at the inaugural session.

CERN Research

The Central European Nuclear Research Organisation (CERN), Geneva, Switzerland, is carrying-out high energy experiments, as a joint collaborative project between the institutes of Aachen-Berlin - Cem - Cracow - London-Vinena-Warsow-Bombay-Jammu.

The European countries have pooled their resources to construct the biggest available accelerators, which form the basic nucleus for the study of High Energy interacactions. CERN has an accelerator where the particle and antiparticle are made to collide at very high energies.

CERN had invited Dr. G.L. Koul, Research Associate, Dept. of Physics, Univ. of Jammu, to associate himself with study of some aspects of the interactions of fundamental constituents of matter. The work constitutes the front-line Physics which is being investigated by the most advanced research centres of the world.

PROGRAMME FOR

	Opening Ceremony	Archery (M & W)	Athletics (M & W)	Badminton (M & W)	Basketball (M & W)	Boxing	Cycling (M)	Equestrian Events			
19th Nov FRIDAY	🔥										
20th Nov SATURDAY					✹			✹		✹	✹
21st Nov SUNDAY		✹			✹		✹	✹		✹	✹
22nd Nov MONDAY		✹			✹				✹	✹	✹
23rd Nov TUESDAY					✹		✹	✹		✹	✹
24th Nov WEDNESDAY					✹		✹			✹	✹
25th Nov THURSDAY			✹	✹	✹		✹	✹		✹	✹
26th Nov FRIDAY			✹	✹	✹	✹	✹				✹
27th Nov SATURDAY			✹	✹	✹	✹		✹			✹
28th Nov SUNDAY			✹	✹	✹	✹	✹				✹
29th Nov MONDAY				✹	✹	✹					
30th Nov TUESDAY			✹	✹	✹	✹					
1st Dec WEDNESDAY			✹	✹	✹	✹					
2nd Dec THURSDAY			✹	✹	✹						
3rd Dec FRIDAY				✹	✹	✹					
4th Dec SATURDAY											
TIME	M — E 1500 - 1700	M 0930 - 1230 E 1400 - 1600	M 1000 - 1145 E 1300 - 1630	M 0900 - 1300 E 1400 - 2000	M 0900 - 1200 E 1300 - 2200	M — E 1700 - 2200	M 0900 - 1200 E 1300 - 1630	M 0900 - 1200 E 1400 - 1630	M 0900 - 1200 E 1400 - 1630	M — E 1330 - 1630	M —
VENUES	Jawaharlal Nehru Stadium Lodhi Road	Delhi University Ground	Jawaharlal Nehru Stadium Lodhi Road	Indraprastha Indoor Stadium Rajghat	Talkatora Indoor Stadium Talkatora Garden	Hall of Sports Mathura Road	Yamuna Velodrome Rajghat	Harbaksh Stadium Delhi Cantt.	Nicholson Ranges Delhi Cantt.	Ambedkar Stadium	Model Town Stadium

N GAMES DELHI 1982

Gymnastics (M & W)	Golf (M)	Handball (M)	Hockey (M)	Hockey (W)	Rowing	Shooting	Swimming (M & W)	Table Tennis (M & W)	Tennis (Lawn) (M & W)	Volleyball (M & W)	Weightlifting	Wrestling	Yachting	Closing Ceremony
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Stadium Rajghat	Delhi Golf Club Dr. Zakir Hussain Road	Delhi University Ground	National Stadium	Shivaji Stadium	Ramgarh Lake, Jaipur	Tughlakabad Range,	Talkatora Swimming Pool	Hall of Sports Mathura Road	Tennis Stadium Hauz Khas	Indraprastha Indoor Stadium Rajghat	Asiad Centre Games Village	Ambedkar Stadium	Arabian Sea, Bombay	Jawaharlal Nehru Stadium Lodhi Road

AIU Library

BHU convocation

(From Our Correspondent)

Delivering the convocation address at the fifth convocation of the Institute of Technology as part of the sixty fifth Convocation of the Banaras Hindu University, Sri Rohit Mehta, eminent scholar and thinker, stressed the need for coordinating Ancient Indian Philosophy and modern sciences.

Exhorting the modern scientists to abridge the gulf between ancient science and modern science, Sri Mehta enlogized the achievements of the Ancient Indian Philosophers. He said modern scientists could not yet find what is mind and matter and the basic component of the universe. The controversy started in the 19th century is still going on. Long ago our ancient scientists propounded that consciousness is the base of the whole creation and the Universe "Chit Ewa Hi Sansaram". Now modern scientists also are realising that physical matter is not the foundation of the Universe and they are turning towards spiritualism.

Criticising the education system, Sri Mehta said that there is a lack of communication between different disciplines, with the result, they have become isolated to each other, hampering the growth of knowledge. Specialisation has got its own values, but inter disciplinary approach to knowledge and education in complete are best suited for the overall development of the personality of the students.

Making a fervent appeal for introducing yoga, meditation and spiritualism in the curriculum of Science and Technology, he said, that students should not become slave of computer civilization, they should learn the language of life. The overall development of the students is only possible when accumulation of knowledge is transformed to wisdom.

On this occasion Dr. Iqbal Narain, Vice-Chancellor presented degrees to 370 students, among them were 9 Ph.D., 27 M. Tech. and 334 B. Tech. degrees.

Applied science courses at Andhra college

Shri Durgaprasad Saraf College of Arts & Applied Sciences, Shriram Nagar, affiliated to the Andhra University, is offering Applied Science courses at the undergraduate level. The subjects covered both main and ancillaries are : BSc (Mineral Beneficiation, Geology & Chemistry), BSc (Mineral Beneficiation, Geology & Material Handling) and BSc (Applied Chemistry, Mathematics & Physics).

Faulting in crystals

An Inter-disciplinary Research Project on the "X Ray Study of Faulting in Crystals" under the supervision Prof. P. Krishna, F.N.A., Deptt. of Physics, Dr. S. Lele, Deptt. of Metallurgical Engg, Dr. D. Pandey, School and Materials Science & Technology has been sanctioned and sum of Rupees five lakhs made available for the project.

DST grant for BHU

The Department of Science and Technology, Govt. of India, has sanctioned funds for setting up the Unit on Metallic Glasses under the auspices of the Department of Metallurgical Engineering. Prof. T.R. Anantharaman Director, Institute of Technology, has been assigned with the responsibility of the Programme Director. This Project will concentrate on continuous production, complete characterisation and possible improvement in properties of such magnetic glasses as are likely to find application in the electrical industry as Transformer Core Laminators.

Lectures at BHU

Under the auspices of the Faculty of Social Sciences, B.H.U. Professor S.P. Varma, former Head of the Department of Political Science, Rajasthan University, Jaipur and now Director, Institute for Developmental Studies, Jaipur delivered two lectures on 4th and 5th October, 1982 in the Seminar Room of the Faculty. The theme of the lectures was the "Crises of our Times". While in the first lecture Professor Varma threw light on the crisis of development, in the second, he dealt with the "Crisis of Survival."

Women physical education teachers to be trained at NIS

A six-week certificate course is proposed to be organised at the National Institute of Sports at Patiala for all women physical education teachers in the country. Under this scheme of training of in-service personnel, over a thousand women teachers are likely to be covered. The expenditure is likely to be of the order of Rs. five lakhs during the Sixth Plan.

Lecture on changing pattern of criminality in India

Under the auspices of the Current Law Forum at Law School of Banaras Hindu University, Dr. Shankar Sahay Srivastava, Professor of Criminology of Kashi Vidyapeeth gave recently lecture on the "Changing Pattern of Criminality in India."

Golden jubilee of Department of Pharmaceutics, BHU

The Department of Pharmaceutics of the Banaras Hindu University proposes to celebrate the golden jubilee of its founding from December 20 to 23, 1982 in a fitting manner. As part of the celebrations the 34th session of the Indian Pharmaceuticals Congress Association will also be held at the BHU on these dates.

Regional science education seminar at Ranchi

The University Grants Commission, it is reported, has selected the Ranchi University to organise in February next a seminar on 'Science Education in the Eastern Region.'

News from Agril. Varsities

Farm implements need careful testing

Presiding over the annual function of the Punjab Chapter of the Indian Society of Agril. Engineers held recently at Ludhiana, Dr. Sukhdev Singh, Vice-Chancellor of the Punjab Agricultural University said that the alternate sources of energy should be used to overcome the present energy crises. He further said that simple bio-gas plants should be installed in the villages to reduce, the drudgery of work of rural women.

Prof. M.M. Mehta, President of the ISAE who inaugurated the seminar on "Engineering Inputs and Farm Productivity" said that mechanised farming in Punjab was the most important factor for the all-time record food production. He further said that Punjab had 1.4 lakh tractors which were 27 percent of the total tractor population of the country. Mr. Mehta appreciated the progressive farmers of Punjab who got their wheat harvested with combines and saved their produce from being damaged by the inclement weather during the last harvesting season. He suggested that a sound research-cum-development cell should be set up in Punjab so that new farm implements were thoroughly tested before they were handed over to the farmers for use at their farms.

Two promising wheat varieties

Two promising varieties of wheat—HD 2285 and HD 2329—have been identified by scientists for cultivation in the northern zone comprising Punjab, Haryana, Rajasthan, Delhi and western Uttar Pradesh.

The team of scientists which developed these varieties was headed by Mr. V.S. Mathur, a senior wheat breeder at the Indian Agricultural Research Institute here.

HD 2285, being comparatively sensitive to temperature changes, gives a higher yield than Sonalika on being sown late. It has also been found suitable for sowing in November. But the breeders warn that it should not be sown before November 10.

HD 2329 is a double, dwarf wheat variety. It has a very high yield potential—even better than WL 711. In the normal-sown, high fertility conditions, it outyielded all other varieties in the all-India trials.

According to Mr. Mathur, the new variety is tolerant to rusts and Karnal bunt. It possesses excellent straw strength. It was the only variety which withstood the severe hailstorms and heavy unseasonal rain during the last season.

Strict seed act needed

Dr S.S. Johl, Director of Research of the Punjab Agricultural University said that more nurseries should be set up in Punjab to provide quality fruit plants and vegetable seeds to the farmers who were otherwise compelled to buy sub standard seed and fruit plants from unreliable sources.

Dr. Johl was inaugurating a two-day workshop of State Horticultural Officers' at PAU recently. The workshop was organised by the Directorate of Extension Education and the department of Horticulture of the PAU to finalise the Package of recommendations for fruit crops and vegetables.

Dr. Johl said that growing of fruits and vegetables could play an important role in the diversification of agriculture. He stressed that storage capacity of the farmers should be increased to enable them to withhold their produce and sell when it was remunerative for them.

Dr. G.S. Nijjar, Director of Horticulture, Punjab, said that an area of 1,16,000 hectares was under fruit and vegetable cultivation in Punjab, which was two per cent of the total area under cultivation of the State. He further said that his department had planned an annual increase of 5,000 hectares under these crops. Dr. Nijjar said that in view of inadequate number of fruit plant nurseries in Punjab, the department was setting up more nurseries to meet the demand of fruit growers. He told that his department supplied four lac quality fruit plants to the growers in the year. Dr. Nijjar stressed that the cultivation of Mushrooms, beekeeping and raising of medicinal crops should also be undertaken by the farmers to supplement their income.

Dr. K.S. Nandpuri, Director of Extension Education of the PAU, stressed that a strict seed control Act should be enforced in Punjab to check the inflow of sub-standard crop seeds and fruit plants from other states.

New species of algal discovered

Researchers of the Botany Department of the Lucknow University, it is reported, have for the first time discovered two new fresh water algal species in the Andaman and Nicobar islands.

The new varieties are stated to be species of the composite alga Glaecocystic.

This was reported by Dr. B.N. Prasad who led a survey team to these islands. These new species are in addition to about 750 other varieties already known to Indian flora.

Personal

1. **Dr Niranjan Singh Sandhu, Associate Professor in the Department of Extension Education of the Punjab Agricultural University has been awarded the South-North Research Award in Education by the International Development Research Centre (IDRC), Ottawa, Canada.**
2. **Dr P. Raghunath Rao, Dr C. Janaki Ram Rao and Dr N. Satyanarayana, Lecturers in the Department of Chemistry, Kakatiya University, have been selected for the award of Fellowships in Polymer Chemistry by the French Government for 1982-83.**

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Political Science

1. Billore, Sandhya. India's foreign policy 1970-1977. University of Indore. Dr. J.A.L. Noah, Principal, Indore Christian College, Indore.

2. Varma, Vaijayantimala. Central state relations under the Prime Ministership of Mrs. Indira Gandhi with special reference to relations with non-congress governments. University of Indore. Prof. A.C. Bhandari, Head, Department of Political Science, Government Arts & Commerce College, Indore.

Public Administration

1. Prabhat Chand. Organisation and working of consumers cooperative in Haryana. Panjab University. Dr. B.B. Goel, Department of Public Administration, Panjab University Correspondence Courses, Chandigarh.

2. Varma, Ram Sahai. Organisation and working of agricultural extension service of department of agriculture and agricultural university, Haryana. Panjab University. Dr. Satya Deva, Department of Public Administration, Panjab University, Chandigarh.

Education

1. Kulkarni, Vasumati Narayan. To find out and to study the reasons of educational backwardness amongst the children of vidi kamgar mahila (women labourers in tobacco industry) and to suggest remedial measures to raise the educational level of these children. Shivaji University. Dr. C.B. Shitole, College of Education, Barsi, Solapur.

2. Yadav, Kalyan Krishna. A critical study of the efforts made by Karmaveer, Dr. Mamasaheb Jagadale for the mass education. Shivaji University. Dr. C.B. Shitole, College of Education, Barsi, Solapur.

Management

1. Mishra, T.K. Study of channel of distribution of Indian garment exporters. Banaras Hindu University. Dr. H.C. Chaudhari, Lecturer, Department of Management Studies, Banaras Hindu University, Varanasi.

2. Ravi Mohan. Media planning in selected advertising agencies in India. Banaras Hindu University. Dr. Abrar Ahmad, Department of Management Studies, Banaras Hindu University, Varanasi.

3. Singh, O.P. Management of integrated rural development programme—a case study. Banaras Hindu University Dr. D. Barman, Lecturer, Department of Management Studies, Banaras Hindu University, Varanasi.

4. Tyagi, Muni Deo. Awareness and adoption of inventory management techniques in medium-scale industries. Banaras Hindu University. Dr. D. Barman, Lecturer, Department of Management Studies, Banaras Hindu University, Varanasi.

HUMANITIES

Philosophy

1. Pethe, Suhas Sadanand. Psychological foundations of philosophy. Shivaji University. Dr. S.H. Dixit, 21, Ideal Society, Kolhapur.

Language & Literature

English

1. Geetha, M. A comparative study of themes, character and techniques in the plays of William Inge and Tennessee Williams. University of Kerala. Dr. K. Radha, Lecturer, Institute of English, Trivandrum.

German

1. Rajalekshmy, P. A study of the satirical element in selected works of Erichkastner. University of Kerala. Dr. Bernard Fenn, Department of German, University of Kerala, Trivandrum.

Hindi

1. Azad Singh. Bhartiya punarjagran Mahrishi Dayanand aur Hindi. Himachal Pradesh University. Dr. Rajdeo Singh, Department of Hindi, Himachal Pradesh University, Simla.

2. Bais, Asha. Rajendra Yadav va Mannu Bhandari ke katha sahitya mein nari patron ka manovaigyanik adhyayan. University of Indore. Dr. (Miss) C.K. Mishra, Department of Hindi, University of Indore, Indore.

3. Bansal, Anand Kumar. Nai kavita ke vikas mein saptakon ka yogdan. Himachal Pradesh University. Dr. Harbansh Lal Sharma, Department of Hindi, Himachal Pradesh University, Simla.

4. Bhardwaj, Bal Krishan. Kamayani ka shaili vaigyanik adhyayan. Himachal Pradesh University. Dr. Raj Deo Singh.

5. Bhupinder Singh. Swatantrayottar Hindi upanyason mein shramik varga. Himachal Pradesh University. Dr. Vijay Mohan Singh, Department of Hindi, Himachal Pradesh University Simla.

6. Bumb, Tejkumar. Malavi lok kathaon ke abhiprayon (kathanak roodion) ke adhar par vargikrit vishleshan evam vaigyanik adhyayan. University of Indore. Dr. S.S. Vyas, Department of Hindi, University of Indore, Indore.

7. Dharampal. Jayashankar Prasad aur Kalidasa kee saundarya chetna ka tuluatmak adhyan (Kavya ke adhar Par). Himachal Pradesh University. Dr. Raj deo Singh, Department of Hindi, Himachal Pradesh University, Simla.

8. Katoch, Kailash. Gaddi shabdawali ka samaj shastriya adhyayan. Himachal Pradesh University. Dr. (Mrs.) Krishna Raina, Asstt. Prof., Department of Hindi, Himachal Pradesh University, Simla.

9. Madhu Bala. Vivah sanstha aur Hindi kahani. Himachal Pradesh University. Dr. (Mrs.) Krishna Raini, Asstt. Prof., Department of Hindi, Himachal Pradesh University, Simla.

10. Sharma, Kanta. Dinkar ka kavya shilpa. Himachal Pradesh University. Dr. Rajdeo Singh, Department of Hindi, Himachal Pradesh University, Simla.

11 Sharma, Manorama. Sur kavya mein prem kee parikalpana: Madhyakalin bhakti andolan ke sandarbh meid. Himachal Pradesh University. Dr. Rajdeo Singh, Department of Hindi, Himachal Pradesh University, Simla.

12. Sharma, Sunila. Sathottari Hindi natak : Parivartit chetna ke roop. Himachal Pradesh University. Dr. O.P. Sarswat.

13. Sharma, Surekha. Hindi katha sahitya mein bal samasya. Himachal Pradesh University, Simla.

14. Sharma, Uma. Hindi kahani ke shilpagat prayog. Himachal Pradesh University. Dr. (Mrs.) Krishna Raina, Department of Hindi, Himachal Pradesh University, Simla.

15. Sood, Rakesh Kumar. Hindi kee nai kahani mein shikshit madhyamvarga. Himachal Pradesh University. Dr. Lallan Rai, Asstt. Prof., Department of Hindi, Himachal Pradesh University, Simla.

16. Taank, Chatter Singh. Sirmour kee lok kathaen: Adhyayan aur alochna. Himachal Pradesh University. Dr. Lallan Rai, Asstt. Prof., Department of Hindi, Himachal Pradesh University, Simla.

17. Tanwar, Lachhi Ram. Prasad sahitya mein prem ka swaras. Himachal Pradesh University. Dr. H.L. Sharma, Assoc. Prof., Department of Hindi, Himachal Pradesh University, Simla.

18. Yadav Malti. Mahila lekhikaon ka Hindi katha-sahitya aur uska anusheelan. University of Indore. Dr. G.N. Tripathi, Government Arts & Commerce College, Indore.

Marathi

1. Raste, Yashwant Shripad. Sahitya parishadinchya mukhmantranche vangamayeen karya. Shivaji University.

Dr. T.P. Upadhye, Head, Department of Marathi, *Smt. Kasturbai Walchand College of Arts and Science, Sangli.

Fine Arts

Music

1. Balaji, V. Violin. Banaras Hindu University. Dr. R.B. Sontekke, Department of Instrumental Music, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

2. Bhagwat, Ram Chandra. Violin. Banaras Hindu University. Dr. R.B. Sontakke, Department of Instrumental Music, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

3. Ckakraverty, Krishna. Sitar. Banaras Hindu University. Dr. R.D. Chakraverty, Department of Instrumental Music, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

4. Chaudhuri, Purnima. An analytical study of the forms-Kajri and Chaity. Banaras Hindu University. Dr. (Miss) Ayyanger, Department of Musicology, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

5. Kalanidhi. Pushtimargiya vigrahon kee rag seva. Banaras Hindu University, Dr. (Mrs.) Vimal Musalgaonkar, Department of Musicology, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

6. Kapoor, Mangla. Vocal music. Banaras Hindu University. Dr. Chittaranjan Jyotishi, Department of Vocal Music, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

7. Hombal, Parijata. Ajanta chitron ka nrityadharit adhyayan. Banaras Hindu University. Prof. (Miss) Prem Lata Sharma, Department of Musicology, Banaras Hindu University, Varanasi and Prof. Ananda Krishna, Head, Department of History of Arts, Banaras Hindu University, Varanasi.

8 Roma Devi. Vocal music. Banaras Hindu University. Dr. Pradeep Kumar Dixit, Department of Vocal Music, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

9. Upadhyaya, Adi Nath. Bhavmattha ke granthon ka alochanatmak adhyayan. Banaras Hindu University. Dr. (Mrs.) Vimala, Department of Musicology, Faculty of Performing Arts, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Arora, P.N. Psychological study of personality patterns of risk and non risk takers of Kumaun Region. Kumaun University.

2. Kumar, Prabha Chandra. Leadership traits as perceived by peers. Banaras Hindu University.

3. Lieyamma, I.C. Social aspects of mental illness. University of Kerala.

4. Mathur, Shashi. Personality variable and colour preferences. Kanpur University.

5. Promila Kumari. Job satisfaction as a function of some dimensions of personality. Ravishankar University.

6. Shrivastav, Avani. Construction of an achievement test for 8th class students. Ravishankar University.

7. Yashwant Kumar. Alienation, anxiety and job involvement as factors related to the productivity of blue-collar industrial workers. Banaras Hindu University.

Sociology

1. Bhai, P. Nirmala. Status dynamics among harijan women in Kerala. University of Kerala.

2. Dharmendra Prasad. Social & cultural geography of Hyderabad city : A historical perspective. Osmania University.

3. Gadgil, Vasundhara Prabhakar. Social bases of political power in rural Maharashtra with special-reference to Kolhapur District. University of Poona.

4. Indira, R. Sociological study of engineering education. University of Mysore.

5. Jakatdar, Vidula Sharad. Scientists and Engineers in Indian industry : A sociological study of professionals in industrial organizations. University of Poona.

6. Johri, Dhirendra Prasad. Inspect of existing social sciences of industrial workers job satisfaction and productivity —a comparative study of selected public and private sector industries in Kanpur. Kanpur University.

7. Joshi, Arvind Kumar. *Ek pravasi-samaj mein nirantarata evam parivartan* (Andaman me azadi purva base Bharatiya prabasion ka samajvaigyanik adhyayan). Banaras Hindu University.

Political Science

1. Chandel, Mahendra Pratap Singh. Uttar Pradesh mein anusuchit jatiyon kee rajniti : Banda Janpad ke vishesh sandarbh me. Banaras Hindu University.

2. Jha, Rajani Ranjan. Study of the office of the Lok Ayukta in India with particular reference to Bihar. Banaras Hindu University.

3. Kesavan, V. Institution of Ombudsman and the problem of its introduction in India. Madurai-Kamaraj University.

4. Kumar, L.C. Soviet attitude towards European Security 1956-1975. Jawaharlal Nehru University.

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BARODA-390002

Notification No. 7

Applications are invited for the following posts in prescribed forms which will be available upto **27th November, '82** alongwith the details of qualifications and specialization from the undersigned on pre-payment of Rs. 2.00 (Re. 00-50) for members of Scheduled Castes/ Scheduled Tribes) by Crossed Indian Postal Order payable to Registrar. M.S. University of Baroda alongwith a self-addressed envelope of 30 cms. x 12 cms. for each post. The Form will be available in person during working days between 11.30 a.m. to 2.00 p.m.

The applicant at the time of requesting for the prescribed forms should mention very specifically the Post Number also for which the forms are required. The Scheduled Castes/Scheduled Tribes candidates will attach a certificate to this effect.

Faculty of Arts

Professor of : (1) Sociology
Reader in : (2) History
Lecturer in : (3) German (4) History (5) Linguistics (6) Sociology.

Faculty of Commerce

Reader in : (7) Accounts

Faculty of Fine Arts

Reader in : (8) Art History
Lecturer in : (9) Applied Arts

College of Indian Musics, Dance and Dramatics

Reader in : (10) Dramatics
Lecturer in : (11) Dance (Kathak) (12) Music (Vocal)

Faculty of Home Science

Lecturer in : (13) Child Development (14) Clothing and Textile (15) Foods and Nutrition (16) Home Science Education and Extension

Faculty of Science

Professor of : (17) Bio-Chemistry (2 posts) (18) Physics (19) Statistics

Reader in : (20) Chemistry (Physical) (21) Statistics

Lecturer in : (22) Bio-Chemistry (2 posts) (23) Botany (3 posts) (24) Chemistry (25) Micro-biology (2 posts) (26) Physics

Faculty of Law

Reader in : (27) Law (2 posts)
Lecturer in : (28) Law

Oriental Institute

(29) Director

Faculty of Social Work

Reader in : (30) Social Work

Physical Education Department

(31) Physical Instructor (2 posts)

Faculty of Technology and Engineering

Professor of : (32) Electrical Engineering (33) Metallurgical Engineering (34) Architecture (35) Textile Engineering (36) Chemical Engineering (37) Pharmaceutics (38) Pharmacy (39) Civil Engineering (Water Management Project) (2 posts)

Reader in : (40) Civil Engineering (1 permanant* 1 Temporary) (41) Electrical Engineering (3 posts) (42) Metallurgical Engineering (43) Textile Engineering (2 posts) (44) Textile Chemistry (3 posts) (45) Applied Chemistry (46) Pharmacology (47) Analytical Chemistry (48) Pharmacy (49) Civil Engineering (Water Management Project) (2 posts) (50) Central Instrumentation (Engineer) (51) Architecture (2 posts) Lecturer in (52) Applied Mechanics (53) Civil Engineering (4 posts) (54) Electrical Engineering (13 posts) (55) Metallurgical Engineering (2 posts) (56) Textile Engineering (57) Textile Chemistry (4 posts) (58) Chemical Engineering (59) Applied Physics (60) Applied Chemistry (61) Applied Mathematics.

Camputer Centre

(62) Head Computer Centre
(Scale : Rs. 1500-60-1800-100-2000)

Polytechnic

Lecturer in (63) Electrical Engineering (3 posts) (64) Mechanical Engineering (3 posts) (65) Civil Engineering (66) Applied Chemistry (67) Applied Mathematics.

II. Senior Instructors (2 posts) (Technical subjects) in Petro Chemical Department.

III. Head Applied Mechanics Department

(Scale : Rs. 1100-50-1300-EB-60-1600)

IV. Principal (Polytechnic)

(Scale : Rs. 1600-80-2000)

Scale of Pay

Professor/Director : Rs. 1500-60-1800-100-2000-125/2-2500

Reader : Rs. 1200-50-1300-60-1600-Assessment-60-1900.

Lecturer : Rs. 700-40-1100-50-1300-Assessment-50-1600.

Physical Instructor : Rs. 550-25-700-EB 25-750-30-900.

Lecturer in Polytechnics : Rs. 700-40-1020-EB-45-1200-EB-50-1400

Senior Instructor : (i) For Degree Holders Rs. 650-30-740-35-810-EB-35-880-40-1040

(ii) For Diploma Holders : Rs. 550-20-700-EB-25-750-30-900.

Reservation of the Posts

(Number of posts reserved are mentioned in the Bracket)

Scheduled Castes (SC) 5 (1), 11 (1), 13 (1), 26 (1), 52 (1). 53 (1), 54 (1), 56 (1), 59 (1), 60 (1), 61 (1), 63 (1), 64 (1)

Scheduled Tribes (ST) 6 (1), 9 (1), 12 (1), 14 (1), 16 (1), 24 (1), 25 (1), 28 (1), 53 (2), 54 (2), 55 (1), 57 (1), 58 (1), 63 (1), 64 (1), 65 (1), 66 (1)

Social and Educationally Backward Communities (SEBC)

4 (1). 15 (1), 22 (1), 23 (1), 53 (1), 54 (1), 55 (1), 57 (1), 63 (1), 64 (1)

If no suitable candidates are available from SC/ST/SEBC categories, the posts will be filled up by other candidates who are found suitable.

The application form, duly completed should be sent to the Registrar, M.S. University of Baroda Boroda-2, alongwith the Cross Indian Postal Order for Rs. 8.00 (Rs. 2.00 for SC/ST candidate) for the post of Lecturer, Physical Instructor and Senior Instructor and for Rs. 10.00 (Rs. 2.50 for SC ST candidate) for the post of Professor, Reader, Director, Principal and Head payable to the Registrar, M.S. University of Baroda on or before **15th December, 1982.**

The candidates if called for interview will have to come at their own expenses.

REGISTRAR

UTKAL UNIVERSITY

Vani Vihar, Bhubaneswar-4.

Advt. No. Estt-I/886-C/A-17287/82

Dated: 14.10.82

Applications in seven copies are invited in the prescribed form alongwith attested copies of certificates and mark lists of all examinations passed for the following post of the University on or before **20th November, 1982.**

1. Psychology—Professor in Educational Psychology.—1 (Substantive).

Scale of Pay : Professor—Rs. 1500-60-1800-100-2000-125/2-2500/- Higher initial salary can be given in case of highly suitable candidates.

Age of Superannuation, 60 (Sixty) Years

Essential Qualification

The Professor shall

(i) be a scholar of eminence, (ii) Possess a good academic record with First or Higher Second Class Master's Degree in the subject. In cases of other suitably qualified candidates, the High Second class at M.A./M.Sc. may not be insisted upon, (iii) have a Doctorate Degree or published work of equivalent standard; (iv) have independent published research work of high standard in addition to the published work mentioned in (iii) above, (v) be engaged in active research and have experience of successful supervision of doctoral research in the subject; (vi) be a teacher for ten years out of which at least seven years should have been spent in regular teaching in Post-Graduate/Honours classes.

Prescribed application forms can be had from the Registrar, Utkal University in person on payment of **Rs. 7.60** including local sales tax **(Rupees seven and paise sixty)** only or by post on receipt of a crossed Indian Postal Order for **Rs. 10/- (Rupees ten)** only payable to the Registrar, Utkal University, Vani Vihar, Bhubaneswar-4 (751004.).

S.K. Ray
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI: BURDWAN
WEST BENGAL

Advertisement No. 4/82-83

Dated 7 October, 1982.

Applications are invited for the following posts :

A. Deputy Controller of Examinations — One post

Scale of Pay : Rs. 1200-50-1300-60-1900/- (lien bound but likely to be permanent)

B. Placement & Students Welfare Officer — One post

Scale of Pay : Rs. 1200-50-1300-60-1900/- (lien free & permanent)

The posts carry dearness and other allowances, and pensionary benefits according to the statutes of the University.

Educational Qualifications and experience :

For post indicated at A

(a) **Essential**

(i) Uniformly good academic record with a B+Masters' degree or its equivalent.

(ii) At least 7 years' experience in a position involving supervision, Control and Planning of Examinations, administration of Colleges or in an Institute of Higher Learning or Government or other academic bodies.

At least 5 years' of the 7 years' experience should be in higher position of high level administration, and 3 years in conducting examinations in either undergraduate teaching institution or equivalent.

(iii) Age not less than 35 years. Relaxable in case of exceptionally qualified candidates.

(b) **Desirable**

(i) A Doctorate Degree or published papers of high standard

Or

(ii) experience of at least 10 years in a fairly senior position in any academic institution like a College or a University or a Research Organisation.

For post indicated at B

(a) Essential

(i) Uniformly good academic record with a B+Master's degree or its equivalent.

(ii) At least 7 years' experience in a responsible administrative/academic position in a University or in a college or in an Institute of Higher Learning or Government or other academic bodies.

(iii) Age not less than 35 years. Relaxable in the case of exceptionally qualified candidates.

(b) Desirable

(i) A Doctorate Degree or published papers of high standard.

Or

(ii) Should have experience of liaison work and interaction with Industrial, Government or Financial institutions for Placement of students. Should also have the ability to organise welfare activities of students.

Provided that in the absence of suitable candidates having the required administrative experience in respect of posts indicated at A & B the essential qualification pertaining to administrative experience required for the post may be reduced or waived on the recommendations of the Selection Committee, if the candidate has been either a Professor/Reader/Principal for at least two years. For candidates having the required administrative experience, the essential academic qualifications may be relaxed on the recommendations of the Selection Committee but the selected candidate must have at least the academic qualifications prescribed for teachers of colleges.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

The candidates who applied for this post in response to earlier advertisement need not apply again.

For application form and other information apply to the Registrar with a self-addressed stamped (0'50 p.) envelope (9″×4″)

Last date for submission of application with requisite fee of Rs. 5/- is **December 4, 1982.**

A.K. Chaudhuri
REGISTRAR

MANIPUR UNIVERSITY

CANCHIPUR : IMPHAL

Advertisement No. 4/82

Dated 14th October, 1982

Applications are invited for the following posts :

(1) Professor in Life Sciences	—1 (One)
(2) Professor in Economics	—1 (One)
(3) Assistant Professor in Mathematics	—2(Two)
(4) Assistant Professor in Economics	—1(One)

Qualifications for the post of Professor at Sl. No. 1 and 2

Essential

(a) Consistently good academic record with at least a high 2nd Class Master's Degree in the concerned subjects or an equivalent qualification from an Indian/Foreign University ;

(b) A doctor's degree or published work of an equally high standard ; and

(c) About 10 years' experience covering adequate P.G. teaching and research work.

Desirable Qualification for the posts of Professors at Sl. No. 1 and 2

Considerable experience of successful research guide in the field.

Specialization for the post of Professor at Sl. No. 1

Fisheries/Entomology/Biochemistry/Genetics/Ecology Plant Pathology/Plant Physiology.

Specialization for the post of Professor at Sl. No. 2

Econometrics/Monetary Economics/Economics of development/Agricultural Economics Industrial Economics Demography/Regional Economics/Advanced Economic Theory.

Qualifications for the posts of Assistant Professors at Sl. No. 3 and 4.

Essential

(a) Consistently good academic record with at least a high 2nd Class Master's degree in the concerned subject or its equivalent qualifications from an Indian Foreign University ; and

(b) A doctor's degree or published work of an equally high standard.

Desirable Qualification for the posts of Assistant Professors at Sl. No. 3 and 4 :

(a) Adequate teaching experience at P.G. Level ;

(b) High aptitude for, and ability to guide research in the concerned subjects.

Provided that in the case of the Assistant Professor if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualification prescribed in (a) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M. Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils those requirements.

Scale of Pay

Professor — Rs. 1500-60-1800-100-2000-125/2-2500/-.

Assistant Professor—Rs. 700-40-1100-50-1600/-.

Plus Dearness and Additional Dearness allowances at the rates of the Central Government and other allowances including Special Compensatory and Medical Allowances.

Relaxation in any of the qualification may be made (a) in favour of persons of eminence or of high academic, professional distinction and (b) in exceptional cases when adequately qualified persons are not available but as otherwise found suitable for the position. It will also be opened to the University to consider the names of suitable candidates who may not have applied.

Benefits of the Contributory Provident Fund Scheme or the General Provident Fund-cum-Gratuity Scheme are available.

University Accommodation on payment of rent under Rules, is also available.

Both-ways Second Class railway-fare plus bus-fare for the road-link by the shortest route will be paid to candidates invited to interview, subject to production of railway/bus receipt.

Applications, in duplicates, with attested copies of certificates in support of qualifications and experiences addressed to the Registrar, showing candidate's names ; dates of birth; marital statuses ; nationality ; postal, parmanent addresses; father's name ; academic and Professional attainment ; publications/research project undertaken ; details of visits to foreign countries etc. and the names and addresses of at least two persons well acquainted with the candidates' professional work should reach the Registrar, Manipur University, Canchipur, Imphal 795003 latest by the **20th November, 1982.**

Applications received after the due date either by hand delivery or through the post will be rejected. Candidates in employment should send their applications through their employers. Advance copies of applications should be supported by applications through proper channel within a week of the fixed last date.

S. Sarat Singh
REGISTRAR

INDIRA KALA SANGIT VISHWAVIDYALAYA

KHAIRAGARH (M.P.)

Applications are invited for the following posts in the University Teaching Departments, viz: Two Readers (one each for Dhrupad and Bharatnatyam), Six Lecturers (one each for Thumari, Sarod, Flute, Manipuri Dance, Folk, Music and Vocal Classical Music), Thirteen Accompanists (Tabla-7, Pakhawaj-1, Vocalist for Kathak Dance-1, Sarangi-1, Harmonium-1, Mridangam for Karnatak Music-1, and Khol for Manipuri Dance-1) and one Professional Assistant for the Library.

Scales of Pay: Reader : Rs. 1200-50-1300-60-1900, Lecturers Rs 700-40-1100-50-1300-Assessment-50, Accompanists and Professional Assistant Rs. 280-10-350-12-½-400-20-480. Posts are permanent and carry CPF benefits and DA/ADA at University rates. Appointees will be on probation according to University Rules. Retirement age is 60 years.

Both posts of Readers are reserved for Scheduled Castes and scheduled Tribes, Fifty per cent posts of Lecturers are reserved each for Scheduled Caste and Scheduled Tribe candidates. Three posts of accompanists are reserved for Scheduled Tribes and two posts for Scheduled Caste candidates. Post of Professional Assistant is unreserved. If candidates are not available or not found suitable posts will be filled up from general categories.

Details of qualifications and other-relevant information as also Application Forms (in four copies) obtainable from the Registrar by sending a self-addressed Rs. 1.55 stamped envelope of 25 x 12 cm. Last date for receipt of duly completed applications (in four copies) is **25th November, 1982.**

D.K. Ghosh
REGISTRAR

SOUTH GUJARAT UNIVERSITY

''University Campus, Udhna-Magdalla Road, Post Box No. 49, SURAT-395007

Applications are invited in the prescribed forms (in eight copies) for the post of One Reader in the Department of Public Administration in the Scale of Pay of Rs. 1200-50-1300-60-1600 Assessment-60-1900 with benefits of Dearness allowance, House Rent Allowance and other benefits like contributory provident Fund and Gratuity as may be admissible under the University Rules.

Information about qualifications and prescribed application form can be had from the undersigned on payment of Rs. 7/-, in cash or by postal order alongwith self addressed envelope of 22 c.m. × 13 c.m. size with postal stamps worth Rs. 2.70 p. affixed thereon.

The last date for receipt of applications will be **12.11.1982.**

G. A. Desai
REGISTRAR

Department of Publications, Guru Nanak Dev University, Amritsar

English Publications

Sr. No.	Name of the Publication	Price Per Copy
	LITERARY CRITICISM	
1.	Whitman's Idea of the Poet by Harsharan Singh Ahluwalia, Ph.D.	Rs. 5-00
2.	Determinism in Hemingway by Ramesh Srivastava	3-90
3.	Hemingway And His For Whom The Bell Tolls by Ramesh Srivastava	19-20
	PSYCHOLOGY	
4.	Personality Correlates of Academic Over Under-achievement by Amar Singh Dhaliwal, Ph.D.	23-00
	HISTORY	
5.	Medieval India : History and Historians by J.C. Grewal, Ph.D., D.Lit. (London)	22-00
6.	Studies in Local and Regional History by J.S. Grewal, Ph.D., D.Lit. (London)	25-00
7.	Ahmadiyah Movement : Past and Present by Spencer Lavan	10-00
8.	Historian's Panjab by J.S. Grewal, Ph.D., D.Lit. (London)	30-00
9.	Early Nineteenth Century Panjab by J.S. Grewal & Indu Banga	25-00
10.	Letters of Udham Singh by J.S. Grewal & H.K. Puri	25-00
11.	From Guru Nanak to Maharaja Ranjit Singh : Essays in Sikh History by J.S. Grewal, Ph.D., D. Lit. (London)	20-00
12.	Guru Tegh Bahadur and the Persian Chroniclers Editor and Translator : J.S. Grewal, Ph.D., D.Lit. (London)	12-40
13.	Maharaja Ranjit Singh and His Times edited by J.S. Grewal and Indu Banga	46-00
14.	The B40 Janam-Sakhi tr. by W.H. Mcleod	70-00
	SIKH RELIGION, HISTORY & PHILOSOPHY	
15.	Secularism and Sikh Faith by Attar Singh, Ph.D.	1-50
16.	History's Verdict on Bacchus by Justice Tek Chand	2-40
	INDIAN POLITICS	
17.	Studies in India's Foreign Policy edited by Surendra Chopra	In Press
18.	Political Dynamics of Punjab edited by Paul Wallace and Surendra Chopra	75-00

For Supply please write to :
The Publication Officer,
Guru Nanak Dev University,
Amritsar (Pb)
INDIA.

AIU Library

ANDHRA UNIVERSITY
WALTAIR
Advertisement No. 2/82.

Applications in the prescribed form are invited for the following posts so as to reach the Registrar, Andhra University, Waltair, on or before **12.11.1982**. Each application shall be accompanied by a Bank challan receipt of **Rs. 10 (Rs. ten only)** remitting the amount in the State Bank of India to the credit of Andhra University General Account (Ordinary) towards the Registration fee for the application. Postal orders will not be accepted. Candidates residing outside Andhra Pradesh shall remit the registration fee by M.O. or Demand Draft in favour of Registrar, Andhra University and send the M.O. receipt alongwith the application.

Department/Subject	Professor	Reader	Lecturer
1. Law	1 (mari-time)	1	1
2. English	—	—	1
3. Central Instrumentation and Services Laboratory	—	1	—
4. Economics (P.G. Extension Centre, Srikakulam)	1	—	—

Scale of Pay

Professor : Rs 1500-60-1800-100-2000-125/2-2500

Reader : Rs. 1200-50-1300-60-1900.

Lecturer : Rs 700-40-1100-50-1600.

The rule of reservation for Scheduled Castes at 14%, Scheduled Tribes at 4% and Backward Classes at 25% is applicable for the posts of Lecturers.

The details of qualifications prescribed in respect of the above posts including the particulars and precise branch of specialisation which is needed and also the preferential qualifications considered desirable will be furnished alongwith the application form.

Requisition for the application forms may be made to Sri P. Hanumantha Rao, Registrar, Andhra University, Waltair accompanied by a self addressed and stamped envelope and a State Bank of India challan for one rupee. Candidates residing outside Andhra Pradesh may, however, obtain the application form by remitting one rupee by M.O. or sending a Demand Draft in favour of the Registrar, Andhra University, Waltair towards the cost of application form. The M.O. receipt should be sent alongwith the requisition for application form. Postal orders will not be accepted. If no suitable candidates are available for appointment as Professor in Mari-time Law, the post may be filled in by any other suitable candidate with different specialisation or by a Reader or by a Lecturer. The University reserves the right to fill or not to fill all or any of the posts. The cover containing the applications should be superscribed as "APPLICATION FOR APPOINTMENT TO THE POST OF——————————".

Persons already in service should send their applications through proper channel. Applications received after 5-00 p.m on the due date will not be entertained.

P. Hanumantha Rao
REGISTRAR

KASHI VIDYAPITH
VARANASI
Advertisement No. 2/82-83
Dated : 18th October, 1982

Applications are invited for the following posts on the prescribed form:

1. Reader (Psychology)—(Temporary One Post) : In the specialization of Social Psychology Industrial Psychology/Clinical Psychology in the grade of Rs. 1200-50-1300-EB-60-1900.

2. **Lecturer** : (Sociology) —Permanent One post—in the scale of Rs. 700-40-1100 EB-50-1600.

Qualification

The minimum qualifications prescribed for the posts of *Reader and Lecturer* will be in accordance with Clause 11.01 and 11.02 of the First Statutes of the Kashi Vidyapith as framed by the U.P. Government, a copy of which will be attached with the application form.

General

Appointment on the post of Lecturer in Sociology will be made on one year probation, which may be extended for another year, if necessary. Knowledge of Hindi is essential. Retirement age is 60 years. Candidate already in employment must apply through proper channel.

For the post of Lecturer, other things being equal, preference will be given to Scheduled Caste/Scheduled Tribes candidates who are considered fit. Such **candidate should indicate in their** application that they belong to Scheduled Caste/Scheduled Tribes and attach certificate to this effect from District Magistrate of the District to which they belong.

Application for each post should be sent separately along with attested copies of marks sheets and certificates in support of the qualification and experience mentioned in the application form and be addressed to the REGISTRAR, KASHI VIDYAPITH, VARANASI - 221 002 so as to reach on or before **Saturday, 20th November, 1982**.

Prescribed Application Forms can be had from the Registrar's Office on payment of Rs. 5/- Out station candidates should send Crossed Indian Postal Order or Bank Draft of Rs. 5/- payable to FINANCE OFFICER, KASHI VIDYAPITH, VARANASI along with self-addressed stamped envelope (size 23 cm. x 10 cm.).

No TA/DA will be paid to candidates called for interview. Right to call a candidate for interview is reserved with the University.

R.N. Singh
REGISTRAR

REGIONAL ENGINEERING COLLEGE, CALICUT.
Advertisement No. PI-10905/82
Dated : 6.10.82

Applications in the prescribed form are invited for appointment to the **permanent post of a Principal in the Regional Engineering College, Calicut in the scale of Rs. 1800-100-2000-125-2250 plus D.A. and other allowances admissible according to the rules adopted** by the College. (The scale is likely to be revised to Rs. 2250-125/2-2500-125-2750).

I. Qualifications & Experience

Essential : A First or Second Class Postgraduate Degree or equivalent in any branch of Engineering/Technology and atleast 20 years experience in teaching/research/industry out of which atleast around 10 years experience should be as Professor in Technical Institutions of University standard. Those having Second Class in Postgraduate Degree should have First Class in the basic degree in Engineering/Technology.

Desirable : 1. Ph. D. or published work of high standard. 2. Experience in administration, planning and development at Degree or Postgraduate level. 3. Experience in guiding research and/or curriculum developments at Degree or Postgraduate level.

II. Age as on 1.7.1982

1. Minimum age limit : 40 years.
2. Maximum age limit : 55 years.

(Note: (i) Age limits specified above shall not be applicable in case of candidates belonging to Calicut Regional Engineering College.

(ii) Any of the above qualifications can be relaxed by the Selection Committee in case of exceptionally qualified and meritorious person.

(iii) Higher starting pay is admissible in deserving cases.)

III. *Application forms can be had from* the Registrar, Regional Engineering College, Calicut, Kerala State, PIN: 673601 on requisition accompanied by a self addressed and stamped (50 paise) envelope 25 x 10 cms. together with a Postal Order for Rs. 2/- drawn in his favour.

IV. Candidates called for interview will be paid First Class train fare for their journey to and fro by shortest route. Applications may be sent by Registered Post addressed to the Registrar, Regional Engineering College, Calicut, *PO: Calicut Regional Engineering College*, Kerala State, PIN: 673601 so as to reach him not later than **15th November, 1982**.

V. Attested copies of mark-list, Degree Certificate, Age Certificate, experience certificate etc. should be sent along with the application, together with a registration fee of **Rs. 10/-** in the form of Crossed Postal Order drawn in favour of the Registrar, Regional Engineering College, Calicut

VI. Those who are in service of Government, quasi-Government or government aided institutions/Universities or similar other institutions should submit their applications through proper channel. In case application is not submitted through proper channel the candidates will have to produce 'No Objection Certificate' at the time of interview.

VII. Incomplete applications and applications without the requisite registration fee will not be considered.

PRINCIPAL & SECRETARY

UNIVERSITY NEWS, NOVEMBER 1, 1982 **Regd. No. R.N. 7180/63 Postal Regd. No. D(C)-534**

HARYANA AGRICULTURAL UNIVERSITY

Advertisement No. 8 82

Applications invited for following posts. Higher start outstanding qualifications, experience and achievements Benefits of Contributory Provident Fund and leave, etc. according to University Rules. Applications of the candidates already in service must reach through proper channel upto the fixed date Applications on prescribed form (obtainable free by sending self-addressed unstamped envelope size 23 × 10 cms. to Assistant Registrar(F), HAU, Hissar) accompanied by prescribed fee of **Rs. 10** - in the form of Crossed Postal Order in the name of Assistant Registrar(G), HAU, Hissar payable at HAU Post Office Hissar, should reach Registrar by **22.11.1982** (6.12.1982 for candidates residing abroad). The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. The envelope containing application must be superscribed as "APPLICATION FORM FOR THE POST OF——————".

1. **Director of Extension Education** : (One) : (i) B. Sc. (Ag.) B.V. Sc. & A.H. B. Sc. (Animal Sciences). (ii) M. Sc (Agr.) M.V. Sc. M. Sc. (Animal Sciences). (iii) Ph. D. in any discipline of Agricultural Sciences Vety. Sciences Animal Sciences (iv) Atleast 10 years experience of Research Teaching Extension in an Agricultural University of which atleast 5 years should be in the rank of Professor or equivalent (v) Proven ability of leadership in Agricultural Research Extension.

2. **Professor of Agricultural Business Management** : (One) : (i) Second class Bachelor's degree. (ii) Second class Master's degree in Business Management or equivalent P.G. training. (iii) Ph. D. in Business Management, with special reference to Agriculture or Animal Sciences. (iv) Ten years experience of teaching research actual work in Business Management in relation to Agril. Development out of which atleast five years should be as Associate Professor or of equivalent rank.

3. **Associate Professor (Statistics)** : (One) : (i) Second class Bachelor degree with Math Stat B. Sc. (Ag.). (ii) Second class M.A. M. Sc. in Stat. or Math. (iii) Ph. D. with specialization in any branch of Statistics. (iv) Atleast five years teaching research experience in Statistics, with special reference to designing of experiments in Agril or Animal Husbandry, with evidence of having conducted independent research and published its results in journals of repute.

4. **Research Scientist (Anatomy & Histology)** : Essential : (i) Second class B.V. Sc. & A.H. (ii) Second class Master's degree in Vety. Anatomy. (iii) Ph. D. in Vety. Anatomy. (iv) Five years' experience of Research Teaching in the above field. Desirable : Research experience on the gross Anatomy of Buffalo Camel.

5. **Parasitologist** : (One) : (i) Second Class B.V. Sc. & A.H. B.V.A. Sc. (ii) Second class M.V. Sc. in Parasitology. (iii) Ph. D. in Parasitology with specialisation in Entomology. (iv) Five years experience in research teaching extension in Parasitology, preferably in Entomology. Desirable : Experience of rearing and maintaining infective and non-infective colonies of ticks.

6. **Extension Specialist (Veterinary)** : (One) : Essential : (i) Second class B.V. Sc. & A.H. (ii) Second class M.Sc M.V. Sc. in Vety. Medicine Vety. Pathology Vety. Surgery Vety. Bacteriology Vety. Parasitology Vety. Gynaecology & Obstetrics Vety. Public Health. (iii) Ph. D. in any of the above fields of Vety. Sciences. (iv) Five years experience of Extension Teaching Research. Desirable : Experience and capacity for planning and organising livestock disease control programme in rural areas.

7. **Agricultural Economist** : (One) : (i) Second class B. Sc. B. Sc. (Agr.). (ii) Second class M. Sc. in Agril. Economics. (iii) Ph. D. in Agril. Economics. (iv) Five years experience of Research. Teaching. Extension in Agril. Economics preferably in Farm Management.

8. **Agronomist** : (Two) : (i) Second class B. Sc. (Ag.). (ii) Second class M. Sc. in Agronomy. (iii) Ph. D. in Agronomy. (iv) Five years experience of research teaching extension in Agronomy.

9. **Associate Professor (Mycology)** : (One) : (i) Second class B.V. Sc. & A.H. (ii) Second class M.V. Sc. in Vety. Microbiology. (iii) Ph. D. in Vety. Mycology. (iv) Five years experience of Teaching Research Extension in Vety. Mycology.

10. **Research Engineer** : (One). (i) Second class Bachelor's degree in Agril. Engineering. (ii) Second class Master's degree in Agril. Engg. with specialization in Soil & Water Engg. and having at least 5 years Research Teaching Extension experience in the field of Soil & Water Engineering. OR Ph. D. in Agricultural Engineering with specialisation in Soil & Water Engineering with at least two years Research/Teaching Extension experience in Soil & Water Engineering.

11. Assistant Scientist (Plant) Breeding) : (One) : (Discipline-Plant Breeding with desirable qualifications as Rapeseed-Mustard research experience).

12. Assistant Scientist (Genetics) : (One) : (Discipline-Genetics with desirable qualifications as Rapeseed-Mustard research experience).

13. Assistant Scientist (Bee-Biology) : (One) : (Discipline-Zoology with specialisation in Bee-Biology).

14. Assistant Research Officer (Biochemistry) : (One) : (Discipline-Biochemistry).

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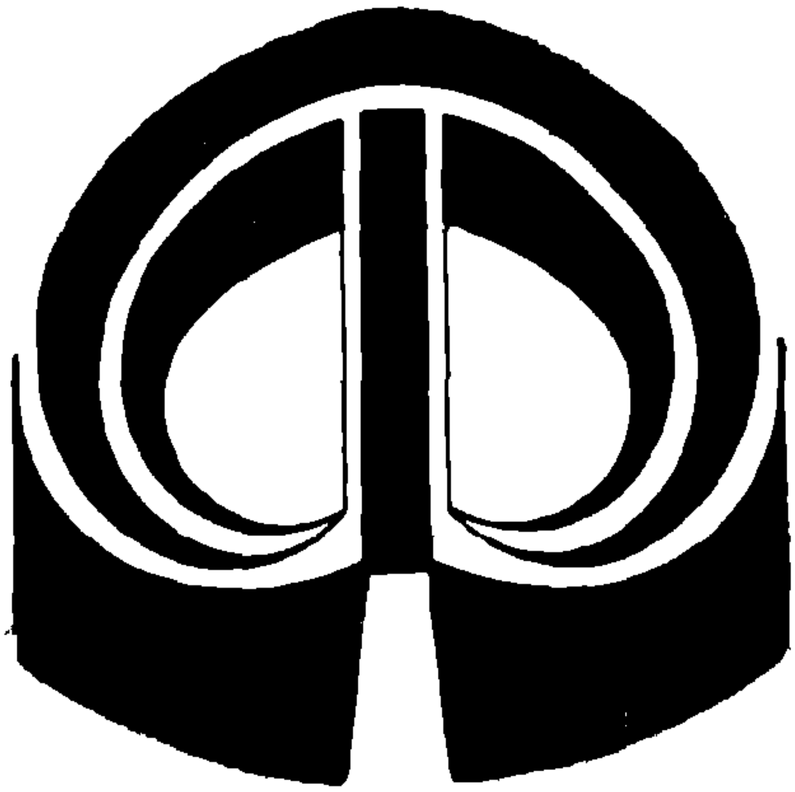

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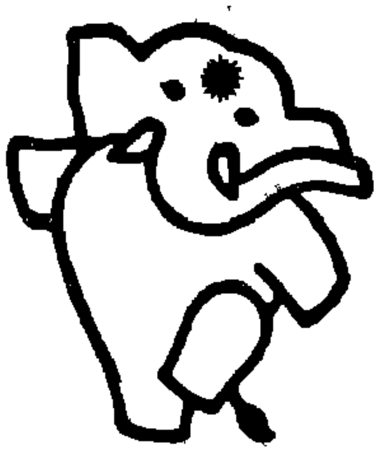
IN THIS ISSUE



Parliament Vs Universities 690
Adding Years to Education 692
Right to Education and the Right to Educate 696
NSS in Himachal Pradesh Agricultural University 698
Convocation 699
Campus News 702
News from Agricultural Varsities 705
Research in Progress 707
Theses of the Month 708
Additions of AIU Library 710
Classified Advertisements 711

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Editor : M.S. Ramamurthy

Friendship Fraternity Forever

After almost thirtyone years, Asiad—a sporting event of almost Olympic dimensions confined to Asian countries—returns to its birthplace. It was in 1951 that Pandit Jawaharlal Nehru, the then Prime Minister of India and a colossus among the world's statesmen, inaugurated the first ever Asiad at the National Stadium in Delhi. The IX Asiad being organised from November 19 to December 4, 1982 is a far cry from the first Asiad. As against 11 countries with a total contingent of less than 500 participating in six disciplines at the First Asiad, there will be over 5000 participants and 2700 technical officials for the 21 disciplines being staged in 17 different stadia for the IX Asiad. Besides, there will be two demonstration games viz. Kabaddi and Sepak Takraw. Equetrian, Rowing, Golf and Handball have been included in Asiad for the first time. The Delhi Games include the largest number of disciplines held in any Asiad.

Impressive facilities have been built up for the IX Asiad. Tughlakabad, which has been in ruins for over 600 years, will now reverberate with sport activity with the building up of one of the world's best shooting range complexes on a 128-acre site. At this range participants can inspect the target personally and will have the use of walkways—a novel design feature incorporated for the first time anywhere in the world.

Indraprastha Stadium with a seating capacity of about 25,000 is the biggest in Asia and one of the largest indoor stadia in the world. It has the third largest dome in the world – a triumph of Indian engineering skill and expertise.

The main athletic stadium – the Jawaharlal Nehru Stadium – is gargautian in proportions. It has a two-tier seating arrangement with a capacity of about 75,000. It is stated that 150 lakhs of bricks – enough to cover half the distance from Delhi to London if each brick is put end on end in a straight line, 21,000 tonnes of cement, 6,700 tonnes of steel bars, 1,000 tonnes of structural steel have gone into its construction. A specially designed integrated audio-communication system comprising a P.S. system intercom and wireless paging which is available here is another 'first' in India. A stadium of Olympic proportions has taken shape.

As Sardar Buta Singh, now Union Minister for Sports and Chairman of the Asian Games Special Organising Committee, remarked "Sports build bridges of friendship and spread the gospel of camaraderie and goodwill in a world torn by conflicts, wars and religious disharmony." The youth who will be participating in a spirit of friendly competition for the greater glory of sport rather than individual honour will, it is hoped, become torch-bearers in the realization of the glorious concept of unity and welfare of mankind. The pleasure is in the chase, not in the prize. The spirit of India is embodied in the statement "*Yogashemam Vahamyaham*". May the Asia carry this spirit far and wide. May the Asiad in India crown itself with glory.

—Editor

Parliament Versus Universities

Amrik Singh*

A Parliamentary Committee is about to create history. If the move initiated by it eventually comes to have legislative sanction, India would be the first country outside the regimented societies to take over the power to decide what shall be taught in our classrooms.

On October 8, 1982, the Central Universities (Amendment) Bill was adopted by the Rajya Sabha. It is expected to be adopted by the Lok Sabha as well in the next few days. Once the President has given his assent to this bill, the stage would be set for a complete takeover of central universities.

This bill provides that all statutes. ordinances and regulations made under their respective university acts shall be laid before each house of Parliament for a total period of thirty days, even if this period is spread over two sessions. On the face of it this amendment looks very innocuous. Several members of Parliament, even those who belong to the opposition, described the bill as technical in character. This was also the line of argument advanced by the minister of education. In order to understand its true meaning, however, it is necessary to go into how the universities are administered.

University Act

What a university act does is to provide the basic structure of the various university bodies and the extent and scope of their powers. This act also provides for what is called subsidiary legislation. According to the principal act, the university is established as an autonomous body with powers to adopt subordinate legislation. In almost every act of a central university it is provided that this subordinate legislation would be of three kinds.

The most important category of legislation is known as statutes. Statutes deal with constitution, powers and duties of the various university bodies, the election and continuance in office of the members of the said bodies, the appointment, powers and duties of the officers of the university, the conferment of honorary degrees, the conditions under which colleges and similar institutions are established and maintained and such other matters. All these are important matters and any decision taken in regard to them has to be submitted to the Visitor for his concurrence before these decisions can be implemented. The Visitor usually means the Ministry of Education. Normally, the Ministry takes a few weeks to consider the statutes. In all cases the opinion of the UGC is also sought and it is after that has been done that the approval is accorded.

The next category of legislation is known as ordinances. These deal with the admission of students, the courses of study and fees to be charged, conduct of examinations, supervision and inspection of colleges and such other matters. Within certain limits laid down in the act, ordinances can be passed by the Executive Council (in most cases in consultation with the Academic Council) and implemented before it is submitted to the Visitor and to the University Court. The Visitor may stay the operation of any ordinance pending a detailed examination. In certain cases, the matter can be referred to the University Court. The Visitor, however, has to express his opinion within one month, otherwise the ordinance stands approved.

The third category is that of regulations. These deal with the procedures to be observed at meetings of the various university bodies and such other routine matters. These can be implemented right away and do not have to be referred to the Visitor for approval.

The composition of the various university bodies is as laid down in the statutes and cannot be changed except with the prior permission of the Visitor. The Academic Council consists almost entirely of teachers. In the Executive Council a kind of balance is maintained between the teachers of the university, and those from outside. Some members are elected by the Court to the Executive Council, while others are nominated by the Visitor and the Chancellor.

The point of saying all this is that decision making within the universities operates by and large on the principle of checks and balances. It usually takes several months for a decision to go through the various bodies and this constitutes a source of dissatisfaction in most universities.

As should be clear, all important decisions taken by a central university go to the Ministry of Education for approval. In the case of statutes, prior approval is required. In the case of ordinances, this is not necessary and only the eventual approval is required. All these years, nobody found this system of checks and balances defective or in need of serious overhaul. Once however the new legislation goes into force, all these matters would be placed on the table of each house and would, thus, be subject to review by Parliament.

There are two issues here. One is the issue of competence. Is Parliament competent to sit in judgement on decisions taken by these professional bodies? The answer is in the affirmative. If Parliament is competent to legislate about education and a hundred other matters, it is equally competent to legislate about these secondary matters.

The other question which arises is if Parliament would have time to attend to these matters. The answer is in the negative. There is so much pressure on parliamentary time that any meaningful review of what is done by university bodies is not likely to be undertaken. What is likely to happen is that some members of Parliament who either have a bee in their bonnet or have motives which are ideological or political in character, will raise certain issues.

Not so long ago, during the Janata days, there was a fairly prolonged controversy about certain textbooks which had been got written by the NCERT for

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**Former Secretary, AIU, New Delhi.*

schools several years earlier. All kinds of objections were advanced in regard to these texbooks. Academic opinion, however, revolted against this kind of witch-hunting and eventually nothing came out of that controversy. In the years to come, situations like this would arise with results that cannot be exactly foreseen. It is not being suggested that we are moving away from an open society or there is going to be some kind of a rigid thought control on the part of the party in power.

It might be asked how all this has come to pass. As stated above, there is a parliamentary committee known as the committee on subordinate legislation. A large number of bills passed by Parliament have the provision that rules and regulations framed under a particular Act should be laid on the table of both houses of Parliament for their opinion and apporval. Sometime in 1955, this committee expressed the view that this should be done in all cases and not only in certain cases as was the current practice. In course of time, the public accounts committee and the committee on the papers laid on the table also supported this point of view. For almost two decades a kind of see-saw battle went on between these parliamentary committees and the various ministries of the government of India. These committees were of the view that the rules and regulations framed subsequent to the passage of a bill should be consistent with the original objectives of the bill. The ministries however argued otherwise. They offered two pincipal objections to the proposal mooted by these various committees.

One was to be effect that once an autonomous body had been created, to ask it to lay its rules and regulations on the table of the house would be repugnant to its autonomous character. The second objection derived from the fact that most of these rules and regulations were concerned with the internal working of these autonomous bodies and, therefore, were not of general public interest. To place them on the table of the house would amount to an attempt to control the internal working of autonomous bodies and in that sense would be inconsistent with their autonomous character. As should be apparent, there is a good deal that can be said on both sides.

It seems, however, that after a tug of war spread over two decades the executive wing lost to the legislative wing. In pursuance of that, the ministry of education also brought forward this amending bill according to which all statutes, ordinances and regulations adopted by various universities would have to be placed on the table of the house.

It is a pity that the Ministry of Education could not get the central universities exempted from the operation of this provision. The governance of universities is very different from the management of other autonomous bodies. In all these autonomous bodies the substantive powers are vested either in the board or in the managing director. In the case of universities, while the vice-chancellor is the executive and academic head of the university, he does not exercise the same powers as the executive head of other institutions.

This is for the simple reason that a substantial part of his functioning is in terms of and in accordance with what the various university bodies decide. Powers are so distributed between the vice-chancellor and the various university bodies that unless the vice-chancellor carries these bodies with him, his functioning would before long either grind down to a halt or he would be rendered ineffective for all practical purposes.

It is this particular future of university governance which should have entitled universities to be exempted from having their decisions subjected to a third layer of the reviewing process, the first layer being discussion and approval by the university bodies and the second layer being approval by the Ministry of Education and the UGC. Now a third layer of review is being introduced and this would be by a legislative body. Whether it improves the working of the universities or otherwise remains to be seen. But this is indebutably clear that universities which today are in a state of chronic crises would find it virtually impossible to function if Parliament also breathed down their neck day after day.

Classic Situation

This is one of these classic situations where a rule has been made and is sought to be applied to all regardless of whether it is applicable to a particular situation or not and the extent of damage that it would do when it is misapplied or applied inappropriately. It should not be necessary to explain once again how universities are different from other administrative institutions. There is not only the general body of teachers whom the vice-chancellor must carry along with him, there is also the vast amorphous mass of students who can derail or destroy even the best laid of plans with the kind of raw and uncontrolled energy that they have and who therefore must be kept within bounds of reason and decent behaviour.

How is it that the Indian press which should have a nose for these things has utterly failed to understand the significance of this amending bill? The PTI report of the debate in Parliament is so wide of the point that it is clear that nobody in the press gallery understood the implications of that discussion. It is not only the news agency which has failed; every other members of the press corps has also failed to grasp the nature of the issues. This is surprising in view of the fact that two former vice-chancellors (those of Delhi and Madras), who are members of the Rajya Sabha, drew pointed attention to the perils of what was contemplated. Considering that the Indian press is in a state of uproar, and rightly so, in regard to the Press Amending Bill recently adopted by Bihar Assembly, it would appear that the Indian press swears by a free and open society. But does it? In view of its total failure to call attention to this lethal attack on university autonomy it would not be unreasonable to question both its bonafides and its professional competence.

And let us not forget, as one of the M.Ps said in the course of this debate, what happens in the central universities would before long travel to state universities. This is a prospect which should fill every honest citizen with the darkest of misgivings. ☐

[*Courtesy* : The Times of India]

Adding Years to Education

R.K. Singh*

In total dis-regard of the general trend in the more advanced countries to add education to years, we in India have chosen the reverse course of adding years to education. Partly as a consequence of this; the teaching-learning and examining processes have been weakened to the point of zero or even minus return on the total outlay, if character formation and building students aptitude towards studies be also included in the final reckoning. In the more advanced countries, concerted and concentrated efforts have been made especially in the post-sputnik era to cut out the dead wood, modernise and strengthen the courses of studies, improve the technology of teaching, all calculated to make education and research more effective and meaningful, while simultaneously reducing the total period of schooling. There has been a greater stress on non-monetary inputs followed by evaluation and appraisal of students performance and of the emerging system. In U.K. there is a proposal of the Labour Party to reduce the three-year degree course to two years and suggestion by some educationists to increase the working days from the traditional 180 to 200. Prof. A.B. Pippard, Cavendish Professor of Physics at Cambridge in a fighting article under the title "The Structure of a Morally Committed University" makes out a case for exactly the same educational structure viz 10+2+2+2 which we are in the process of liquidating at a very heavy recurrent and non-recurrent cost. In U.S.A. the four year degree course after High School graduation can be and is reduced to three or even to two and a half through different processes of accelaration, advance credit, and additional sessional and summer courses etc. A debate is on to reduce the four-year course formally to three. Here, at home, we have added a year to the two year degree course in pursuance of the Calcutta University Commission recommendation of 1917-19, completely oblivious of the intervening changed circumstances. With us reform, innovation and progress have become synonym for structural changes, implying sometimes no more than mere permutations—a year added at one end and substracted at the other, leaving the total period intact. More often however it has been a case of adding years to the total. In either case, more and more monetary inputs and less and less non-monetary inputs have gone into the process.

An incredible amount of money has been spent on multiplication of universities, colleges and research institutes, on construction of palacial buildings and in furnishing them in the latest style and on increasing the staff all along the line. The non-monetary inputs—the desire along the faculty to teach, extend the frontiers of knowledge directly or through their students and to set examples of excellence, and among the students to benefit from the increased physical facilities and enriched staff, have not only kept pace with the increased in-puts but have even shown signs of weakening. The correlation between the two is negative. Years have been added but paradoxical as it may appear, increase in years has not resulted in an increase in the total number of working days nor in the student's time for studies, it having been more than off-set by frequent and continued strikes by the faculties, students and karmcharies. Still worse, which largely explains the all round deterioration in education, the political will on which depends the success of the educational enterprise has largely reversed its role.

One explanation seemingly plausible for the addition of years to education may be that our undergraduate, postgraduate and research degrees do not command the esteem their counterparts in more advanced countries do and further that they are not able to meet the qualitative demands on them.

Since the lower storeys of the educational structures have become weak and are becoming weaker, the argument would seem to run, there is need of adding upper storeys, a policy opposite to that followed in the building trade. A vicious circle seems to have set in. The purpose of this essay is to impress on the university people, particularly the planners among them, the imperative need of breaking the vicious circle as much in the interest of education as in the interest of national character.

The M.Phil., the latest comer in the field of education which has increased the schooling period from one to three years with possibility of further increase, for persons desiring to enter the teaching profession, may be taken as an example to illustrate the criticisms made above. This degree comes as a buffer, a prop, between the master's and the Ph.D. degrees.

An illustration is provided by what transpired in the second meeting of the "Committee to revise the M.Phil Program." of a reputed university held on July 29, 1982. Having failed to participate in the first meeting, I wanted, a little critically, to understand the purpose of the course and the standard that was intended to be achieved. These were precisely the queries I had to answer, as Vice-Chancellor of Meerut university in 1967, to a U.G.C. group, consisting of Professors Kothari, Saiyedain, Naik and Swaminathan, when a proposal to introduce M.Phil degree was first mooted. The discussion which ensued was very educative. The M.Phil program of that university was a result of that exercise.

From the looks of the program revision committee members and the exchange of glances among them, it was obvious I was looked upon as a Rip Van Winkle, in a sense very justifiably, being at least twenty years older than the oldest in that group of senior doms of the university. They appeared to be in a hurry. A more pointed question, however, provoked some off-the-point remarks. Do we expect that our M.Phil degree will compare favourably with Oxbridge Honours? The Oxford man in the group was the first to react to the question. We must, he murmured, be able to equate our M.A. degree with their Senior Cambridge Diploma before aspiring to equate M.Phil with Oxbridge Honours. Another professor volunteered the statement that it is perfectly possible to earn the degree in absentia since attendance is not compulsory and many of the students stay outside the university town. They can take the examination without attending a single lecture. A third stated that he knew one case in which examination was held without a single lecture being delivered in the course. The Director of an off-campus Institute expressed his unhappiness over the developing dis-satisfaction among his faculty for the reason that while drawing the same salary, they have to put in more days and hours than their counterparts on the main campus, where strikes are more frequent and prolonged.

**Ex-Vice-Chancellor, Meerut & Himachal Pradesh Universities.*

There was a general feeling of dis-satisfaction arising from a denial of opportunity to teach. The specific complaints were that the government has taken over the university and has completely politicised it. Strikes are encouraged by competing political parties for cross purposes. Attendance in classes is not compulsory. "Hands off the student community". Policy of the different governments has made the student community immune from the rule of law. Degrees can be earned through violence, threat, fraud, pressure, and cheating. The average student prefers these methods to hard work. As a result the conviction has grown among them that there is very little the teacher community can do to improve the educational climate of the country. To the question why have M.Phil courses been started, the reply was, "because the U.G.C. has provided funds and the Government wanted it to be done."

The position of M.Phil is not very different in most of the other universities in which these courses have been started. An eminent professor gives a very depressing picture of the position in his university. Comparing the university with the colleges of old, he says, "the university is now a third rate degree college. The M. Phil degree is probably our worst and cheapest degree . . . . though theoretically the course is of one year's duration, it never takes less than three years to complete it." After stating changes brought about in the structure of the course recently he says that as a consequence "it may take more than three years to get the M.Phil degree." Imagine a university, compared by one of its professors with a third rate degree college awarding M. Phil degree to M.As and M.Scs in more than three years. I wish the professor had given some idea of the time it will take to earn a Ph.D. degree after the award of M.Phil.

One university has started the degree in two of its locally based affiliated colleges under a clearly self-defeating arrangement. The courses are given by teachers appointed by the university who are answerable to the Vice-Chancellor alone. The host colleges have only to provide campus facilities. One college was invited to conduct courses in Zoology. It having declined the offer on principle, another college is now preparing students for the degree with one sole teacher of the rank of a Reader appointed from among the staff of that college. His previous head of the department continues to be in the lecturer's grade. In Physics and Mathematics in the same college there are two teachers, one professor and one Reader in each, preparing students in different fields of specialization. A third college has been assigned chemistry, the residual subject in the faculty of science. It is preparing fifteen students in physical, organic and inorganic chemistry with one professor and one reader. Since the post-graduate classes of this college are located on a campus about ten miles away from the main campus and since the M. Phil teachers are not willing to go to that distant place, the under-graduate library and laboratory located in the city are supposed to provide the basic facilities for the course.

The M.Phil teachers, most of them selected from the existing staff of the colleges, superseding some seniors, are socially ostracised by the faculty, especially by the teachers of the departments concerned. They are divided into two hostile campus. Besides thus vitiating the atmosphere in the colleges concerned, the introduction of the courses in selected colleges in one centre, has resulted in inter-collegiate jealousy throughout the university. It is not clear why, if M.Phil courses were deemed necessary, they were not started in the better established universities of Allahabad, Lucknow and Roorkee. Roorkee University qualifies more than any other university in the State for Physics since it is the only one on the list of Special Assistance Programme of the U.G.C. for the subject.

As many of the universities are still programming M.Phil courses and the older ones too may be well-advised to review their programmes, it may be of some advantage to both the categories to know the circumstances under which the first M.Phil courses were started in the university of Meerut, the purpose they were to serve and the standard they were to achieve.

In the discussion with the aforesaid U.G.C. group, I tried to establish three principles. First, the effort of an Affiliating type of university should be to narrow down the distinction between the university and its affiliating colleges to the utmost extent. It should be the endeavour of the university to strengthen the colleges to earn autonomous status within a specified period under the umbrella of the university. In reference to them, the university should function as an Accreditation Board with wide powers. Second, the university should not compete with its colleges, nor should the colleges be permitted to compete with the university. Their spheres of work should be different. The spirit of rivalry must be avoided to ward off conflict. Third, in its initial stages the university should not engage in any activity of which the colleges may not be direct or indirect beneficiaries.

A scrutiny of the qualifications of the teachers of the Meerut university colleges brought out the fact that 72% of them had received their final degree from the university of Agra under a syllabus which had remained unchanged for decades. It was clear that the academic standard of the colleges could not be raised without up-grading and up-dating the knowledge of their teachers. It was therefore decided that the university should primarily be an inservice training centre for the college teachers. M. Phil courses were the answer. A fourteen month course on an inter-disciplinary basis was designed to enable in-service teachers to take advantage of two summer vacations. Subjects like Botany, Agriculture, Agronomy and Horticulture were grouped together, as also Sociology, Psychology and Education, and Physics and Mathematics, with common apex courses for each group and specialised ones for each discipline. A trimester non-credit course on university education was made compulsory for all. The expected standard was to be approximately the same as of Oxbridge Honours Degree or of M.A/M.Sc. of red-brick universities. In the appointment of teachers preference was given to fresh degree holders from the better known universities of U.K. and U.S.A. Semester and Trimester courses were introduced to make the course-work more intensive than was possible under the annual system. The objective of the Research paper was simply to enable a student to prepare an outline of a research problem on which he could work for a doctorate degree immediately on earning the M. Phil degree either in the university itself or in one of the colleges under the guidance of a university or college teacher. The emphasis was clearly on course work.

In pursuance of the policy to avoid competition between the university and colleges it was decided that the university would not prepare students for under-graduate or M.A/M.Sc. degrees nor would it enter students for a Ph. D. degree direct. This was to remain a function of the colleges.

Upgrading and modernising the syllabi and updating the knowledge of the teachers in the colleges were the two main functions of the university which M. Phil studies were to subserve.

It would appear that the M.Phil courses have generally been introduced in the universities in response to directives, backed by funds, from the U.G.C. Introduction of the courses was an end in itself and that end having been achieved, they have ceased to attract attention. All that remains to be done now is to make the course an integral part of studies in the university system. The universities accustomed to receiving orders from above have done or are about to do their formal duty of compliance. It is not their duty, in fact it is nobody's concern to examine the processes and evaluate the results in reference to the objectives, if any, which the courses were supposed to serve. This observation applies with equal force to the extension to the two-year degree course to three. The ostensible reason for the extension as given by the Calcutta University Commission and by the Kothari Commission was to make the standard of the under-graduate degrees of the Indian Universities comparable to that of the British universities. The extent to which this has been achieved is any one's guess. Neither the extent of the gap in knowledge nor the reasons for the same have been investigated. It is an obligation of the universities to appraise their programs and performances. Perhaps they are not conscious of this obligation. The University Grants Commission whose duty it is to co-ordinate and determine standards in respect of higher education has not cared to fulfil its obligation. Perhaps its hands have been too full with the enviable task of distributing funds. Prof. Amrik Singh in "Foundation And Role of U.G.C." published in the Monsoon-Autumn 1981 issue of Journal of Higher Education, poses a question to highlight this default: To what extent the U.G.C. has utilised the powers of co-ordination and determining of standards vested in it? His answer is : "The simplest answer would be that had these powers been put to use even partially the situation in higher education would not have been what it is today." Prof. Amrik Singh having retired from the position of Secretary of the Association of Indian Universities should be able to say why a professional role was not assumed by the Association of Indian Universities. Paucity of funds would not be an adequate explanation. No Government can turn down the request of such an important organisation and if it did, it would not be difficult to attract endowments from the public.

Vis-a-vis the wide spread dis-satisfaction among the knowledgeables in the country towards education in general and university education in particular due to frequent and prolonged strikes by students, teaching faculty, the ministerial staff and the karamcharis separately as well as jointly, politicisation of the universities, denigration of the position of the Chancellor & the Vice-Chancellor, un-called for interference by the governments to serve party interest, violence, pressure and fraud used by students to earn degrees and the callous dis-regard of their duties by a section of the teaching profession, it is not clear on what basis and with what motive the Chairman of the University Grants Commission, Dr (Mrs.) Madhuri Shah has pronounced the judgement, in the course of her address to the conference of Vice-Chancellors on May 30, 1981 (published by the U.G.C.) that the top 10 percent of persons trained by our universities compare with best anywhere in the world." Incidentally the top 10 percent of the total student enrolment in Indian universities viz 2,75,244 (U.G.C. Report for the year 1980-81) is approximately equal to the total

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university enrolment in the British Universities which in 1979 stood at 2,79,000 (Education in Britain, British Information Service).

The university teachers all over the country are seriously concerned about the falling standards. They are frustrated and desperate and feel nothing can be done by the teachers to retrieve that position. An inference can be drawn from the statement of the U.G.C. Chairman that since 10 percent of our best compare with the best 10 percent anywhere in the world, nothing remains to be done. Interestingly enough, opposites lead to a point of convergence, frustration and optimism meet in "inactivity".

This assertion of parity in achievement (let us for the time being confine it to India, U.K. & U.S.A.) presents an enigma to the university people and the educational planners. While in U.K. and U.S.A. a Ph.D. degree is normally earned in three years after graduation, after a B.A./B.Sc. degree is earned, although in exceptional cases the period can be reduced to two, in India the statutory requirement is five years after graduation although only in exceptional cases the degree is earned within that period. The University Grants Commission awards junior fellowship to holders of post-graduate degrees for Ph. D. work. "The normal tenure of the fellowship is four years extendable by another six months in special case, on the recommendation of the supervisor/head of the department and the university." (U.G.C. Report for the year 1979-80). The expectation of the U.G.C. is that normally a well provided student or in-service teacher will earn the Ph.D. degree in six years after the first degree, in double the time it takes to earn it in U.K. & U.S.A. Further he can get the period extended by six months, if he wants to go about the business more leisurely.

The conclusion is irresistable. Years are being added to education but concomitantly reducing the quality of knowledge. Any assertion that our Ph. D. compares with the Ph.D. of the American and British universities will not stand the test.

But the loss of students time and inadequate utilisation of scarce resources of the country are not the worst of the consequences of the educational system developed in the last few decades. There are more serious ones, whose devastating effects on the moral, religious, economic, social and political life of the country will become increasingly more painful as the years roll by.

First of these is the decreased aptitude towards studies and research. The disintegrated syllabus, packed up mostly with superfluous and obsolete factual information largely irrelevant to the needs of the times, doled out by indifferent teachers, neither arouses the students enthusiasm nor curiosity nor challenges his capacity. As he climbs the higher educational ladders he becomes more and more convinced of the superfluity and irrelevance of his studies and researches. He losses interest.

Second, the time required, normally eight to nine years after Intermediate examination for preparation to qualify for a university position, as compared to five to six years to enter the more lucrative and prestigious professions of medicine, engineering and higher government services effectively bars the entry of our best products to university and college teaching. The shift is constantly from potentiality to mediocrity. It is not realised by the educational planners that not only in the long run, but even to start with, a brilliant M.A./M.Sc. is likely to make a better teacher than a mediocre Ph.D. The former can, or even may be required, to earn Ph. D. within a specified time but the latter cannot increase his intelligence however hard the pressure may be. The entry of intellectuals to the teaching profession requires greater degree of sacrifice now than ever before.

Third and the most serious of the consequences concerns is the character of the youth. Character is a by-product of the influences to which a person is exposed, one of them being his work environment. Our university system does not provide the environment conducive to healthy work habits. The academic program is too weak and non-challenging both to the teachers and the taught. The youth learns to take things easy. This gets embedded in his character.

The issues raised in this essay are not new. They are in the minds of the educators and are talked about in leisure times. M.C. Chagla in his thought provoking autobiography, "Roses in December" says: "We know the problems, we know the answers, at any rate most of them. In many cases, we also know how to implement. What is lacking is the moral courage to start implementation?" This statement may be modified to say that "What is lacking is the will to start implementation." How to create the will is our problem? □

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Right to Education and the Right to Educate

K.R. Ramachandran Nair*

The citizen's right to receive education and the state's right to educate the citizen are two concepts that have provoked much thinking among modern educationists. With the growth of democratic institutions and the spread of social welfare ideas both these rights are increasingly being accepted as inalienable. However, with the advent of a technological society in the west with its nuclear power plants, electronic equipments, computer controlling systems and automated production process which have created now relationships, values and standardisation the rights and obligations treated as sanctified in the industrial society have now ceased to be so. In a developing society like ours also shackled with several economic and social constraints and handicaps the rationale of educational rights has become a topic of critical reconsideration.

To consider education as a matter of right for every citizen is not altogether a new idea. Thomas Paine mentioned it in his 'Rights of Man' and Edmund Burke, though an enemy of the principle of natural rights, spoke approvingly of citizen's 'right to instruction'.

The Declaration of Human Rights adopted by the U.N. in 1948 says 'Education is a universal human right'. However, the statement is qualified by the observation that only elementary education is a universal right, technical and professional education should be generally accessible and higher education should be accessible based on merit.

No country can have a modern economy or technology without a greatly extended education system. But this does not require that every citizen should be highly educated. So the right to education for every citizen is based on considerations other than material progress or attainment of power and riches. The basis for the assumption that education is a right is that without it human beings cannot be fully and richly human. It is a moral force that enlivens this assumption rather than any legal sanctions or compulsions. Since education is something that is attainable in a foreseeable future through the combined efforts of the individual and the state, it attains a moral force. Thus it would be safe to treat education as a 'welfare right' rather than as a basic or civil right. As the societies vary in their development and priorities and as the very idea of a state itself undergoes mutations citizens right to education also undergoes conceptual changes. It simply becomes an emergent right in relation to society.

In India the policy is not to deny even higher education to any one. Articles 29 and 30 of our constitution guarantee cultural and educational rights to every citizen of the country. Article 41 recognises the citizen's right to education. By article 45 the state has not only recognised the citizen's right to education but also has undertaken to provide 'free and compulsory education for all children until they complete the age of fourteen years'. However, the citizen's right to education operates with in certain circumscribed limits; it has not been recognised as a claim backed up by law. Though every citizen can claim equal opportunity in the enjoyment of this right subject to his intellectual and material capability, no citizen has the right to claim from the state either the type of education he prefers or all the facilities he thinks necessary to complete his education. Thus the right to education becomes illusory as it not effectively administered to all citizens alike or supported by means to attract the less privileged sections of society to it.

It is often said that right to education in a democracy is important because only an educated citizen can exercise his franchise without fear or favour. This is certainly a specious argument because exercising the franchise is only one of the innumerable rights or duties a citizen makes use of, and that too rarely. In fact the right to education is sacrosanct because it arises from the concept of social equality and equality before law. However, equality is only one of the values among many in a multidimensional society. Its actualisation should not lead to tampering with other values like justice. That is why though all citizens deserve education equally, they do not necessarily qualify for the same kind of excellence in education. As Harold Laski pointed out, it is consistent with equa-

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lity even if people are treated differently as long as differences are relevant to the common good. The right to education does not confer on a citizen any privilege to claim equal treatment in the matter of admissions to institutions and courses without regard to his performance or merit or in the matter of passes and grades in examinations. Similarly, in an unequal society like ours, special expenditure on education of the backward classes, the handicapped, the orphans etc., is justified because otherwise the society will not benefit from the fruition of their talents. Special expenditure on the most brilliant section of students as in medicine or engineering is also justified because then only the society can get maximum benefit out of their talents.

The state should keep a watch over how the services and trained talents of the beneficiaries of its policy are placed at the disposal of the nation at a later stage. The special rights they have enjoyed during the period of education are correlative with the duties to the state which has supported them. The state should have a concern about the social returns on its investments in education. The students right to the country's money that will permit him to go through various levels of education provided by the state is obviously not unlimited. Perhaps in the very near future the state would have to enact laws to prevent the misuse of its munificence in the matter of providing education to its citizens and even to penalise those who waste the facilities afforded to them by the state.

If the citizens have a right to education, has the state the right to educate and prescribe the type of education its citizens should have? It is one of the arrogances of the modern state that it should interlope into every aspect of a citizen's life by overstepping the limits to which originally the nation-state confined its activities. As early as 1780 John Adams made it a part of the American constitution that it is the duty of the state to cater to the 'spirit and mind of man' and to 'cherish the interests of literature and the sciences and all seminaries of them'. With the emergence of the modern nation-states that have diversified their activities to influence every aspect of an individual's life and with the extension of administrative tyranny to hitherto unexplored regions of social life, state initiative and control of education has become a part of modern ideology. In fact, the success of a modern state is often judged on the basis of its triumph in the use of its presumed right to educate its citizens. Government is the instrument of the state for the purpose of enforcing its policies. The men who represent the government and who are entrusted with the duty of implementing the state's policy are not always the best of men possessed of the frenzy of state policies. Thus there is a dichotomy between the absolute policy directions of the state in the matter of education and the outlook of those who have already enjoyed the benefits and privileges of education and are now entrusted with the task of implementing the policies. So in spite of the noble intensions of the state policy, the government machinery often exhibits unwanted authority, arrogance and obtuseness in administering its right to educate.

State controlled mass schooling has been an innovation of the industrial society. So strongly have the modern societies committed to compulsory mass schooling that it was included in the Declaration of the Rights of Children in 1959 by the U.N. Article 45 of the Constitution of India also emphasises the state's right to impart free compulsory education to all children upto the age of fourteen. In the U.S.A. and the U.S.S.R. there is provision for compulsory primay education. However, there has been a rethinking on the rationale of the state's right to educate its citizens almost in a uniform manner irrespective of their racial, religious, ethnic, cultural and intellectual differences and unmindful of the opinion of the parents. In recent times the courts in the U.S.A. have upheld on several occasions the stand of the parents who refused to send their children to state owned schools for compulsory education.

The point to consider is whether the state has any inherent right to devise and impart a uniform system of education to all its citizens and to obstruct, though covertly, any other system from functioning effectively which might lure away the citizens from the state's hold. If the state assumes powers to prescribe an educational straightjacket to all its citizens, is it not incumbent on the state to ensure that the quality of education it imparts is commensurate with the citizens' needs and aspirations? At present there is no constitutional remedy the parents can aspire for when the state education system, either because of its inherent inferiority or through its haphazard implementation deprives their children of all initiative, thinking, discipline and sense of values the development of which should be the purpose of all education. It is time to realise that the state's right to educate is not merely perfunctory as is often thought but decisive in producing the most well-balanced citizens out of the generations of children who are innocently herded into its schools for no fault of theirs. ☐

[*Courtesy* : The Hindu]

NSS in Himachal Pradesh Agril. University

M.P. Gupta*

Reports after reports have revealed that the Indian system of higher education does not inculcate among youths rational attitudes towards life and work in rural areas, rather it developes a habit of dislike for manual work. The University Grants Commission in its Policy Frame Development of Higher Education India (1978) has observed that "If the University System has to discharge its responsibilities adequately to the entire educational system and to the society as a whole, it must assume extension as a third important responsibility and give it the same status as teaching and research." In this direction, pioneer endeavours have been made in H.P. Agricultural University by integrating students' extension training with N.S.S. Programme. Under this scheme, the students of the college of Agriculture, Palampur, had been actively involved in rural development through regular activities and special camping programmes since June, 1980. The students have been regularly visiting villages in the vicinity of the University under the guidance and supervision of Dr. M.P. Gupta, Programme Officer, NSS-cum-Associate Professor, Extension Education to impart modern techniques of Agriculture, Horticulture, Animal Science and Forestry to the farmers. In a period of two years under special camping programme, 5 Camps of 10-15 days duration were organised in Thural, Gharjmula, Banuri, Tanda and Chobin Village panchayats.

In additions, recently, a 12-day Special NSS-cum-Extension Training Camp was organised in Baijnath and Chauntra Blocks of Kangra and Mandi Districts involving more than forty five final year students of the Agriculture College with an overall objective to provide opportunity to the students for studying rural problems, suggest solutions, plan programmes, prepare plan of actions and undertake extension activity. In order to achieve this aim, work schedule indicating the date, time, activity to be carried out and necessary inputs were provided to the students in groups. Each group was required to prepare the plan of work in consultation with Programme Officer, keeping in view the local conditions and proposed activities to be carried out. In all 47 villages of Bir, Chauntra, Ahju, Matro and Sansal Panchayats of two blocks in radius of 12 kms. were covered under the camp. For this purpose, the students were divided into six groups and each group was required to give complete coverage to the allotted villages in respect of the projects with the co-operation of resource personnel. The students worked in two shifts i.e. 8.00 to 1.00 in the morning shift and then from 3.30 to 6.30 in the evening shift. At night agricultural and recreational films were screened in different villages. During the Camp, students collected 300 soil samples for analysis, launched 4 massive campaigns for the rat-eradication, destruction of weeds in crops, seed-treatment and planting of trees in schools and community centres. Further, 12 demonstrations on sowing of off-season onion were laid out and off-season vegetable seeds were distributed among 250 willing farmers free of cost. Besides, a Farmers' Fair was organised in Bir village on 7th July, 1982, wherein answers to farm and home related problems were given by the scientists of the University. More than two thousand farmers attended the fair. On this occasion a brief report of the work done by the student volunteers was presented by Dr. M.P. Gupta and cultural programme was given by children of different schools. While presiding over the function, Dr. H.R. Kalia, Vice-Chancellor, H.P. Agricultural University, highly appreciated the work done by the NSS volunteers for rural uplift and advised them to keep it up. Inspired by students' work for rural development, Pardhans of far-off Gram Panchayats approached Programme Officer, NSS, for similar camps in their villages. ☐

**Associate Professor H.P. Agril. University.*

S & T Education in India

Excerpts from the convocation address delivered by Mr N.D. Tiwari, Union Minister of Industry, Steel and Mines, at the Indian Institute of Technology, Bombay.

“. . . .On an occasion like this, when you have completed a fruitful period in the service of the nation, it would perhaps be appropriate to recall the basic considerations which led to the creation of this and similar Institution in the early years of the post-Independence era. To many amongst the bright young men and women who passing through the portals of this Institute, the struggles and sacrifices of an older generation in the fight for securing the Independence of this country from foreign domination will seem to be no more than a receding glimpse of history. The march of progress of a nation, however, cannot be viewed independent of its historical background and it would, therefore, be necessary to turn our sights to those formative years of the birth of the nation recall the concepts and values that inspired the freedom struggle and to reaffirm our national objectives. To sustain the spirit of adventure and to re-assert the determination to achieve our goals are particularly important in the context of the challenges the nation faces during the 1980's.

“The struggle to free ourselves from colonialism, it is necessary to remember, was inspired by the paramount consideration of achieving as rapidly as possible its rightful place in the comity of modern nations as a vibrant self-reliant nation. Political independence was recognised as only the first step towards a more intensive effort towards securing economic independence. The rebuilding of the economy of the country to eliminate poverty and to bring about substantial improvement in the standards of living of the people was the social objective of the freedom struggle. This vision of a modern and progressive Indian society provided pith and sustenance to the struggle for independence.

“We owe a great deal to the wisdom and foresight of Pandit Jawaharlal Nehru who, even before India's Independence, had set up national planning committee to formulate a national plan for securing the economic betterment of the country. With a keen insight into the complex issues of socio-economic development, it was Panditji who, more than anyone else, appreciated the role of science and technology in the socio-economic transformation of a stagnant and traditional society.

Mr. N.D. Tiwari

It was clear to him that the problems of poverty and unemployment could be effectively met only through the application of science and technology in the various facets of economic life of the country. He was conscious of the fact that real independence could come about only to the extent scientific and technical capabilities are rapidly built up and that for a large country like India, excessive dependence on external sources, would be detrimental to the pursuit of its own chosen political and economic policies. In his inaugural address to the Indian Science Congress in January 1951, Panditji observed : “My interest largely consists in trying to make the Indian people and even the Government of India conscious of scientific work and the necessity for it”. He was also acutely aware of what he often used to call the need for induction of a scientific temper, the ability to reason out, to instil the spirit of enquiry. In one of his speeches, he observed : “The basic thing that science should do is to teach us to think straight, to act straight and not to be afraid of discarding anything or of accepting anything provided there are sufficient reasons for doing so.”

“This approach to science and technology has continued to inform our science policy. Our esteemed Prime Minister, Shrimati Indira Gandhi, in her speech at the Indian Science Congress in 1970, has reflected the same sentiments when she said : “We regard science as a powerful instrument of social change. Modernisation is not merely production through improved technology, it means changing the lives of individuals and of the nation”. We have come a long way since the days of independence. A large infrastructure has now been created by way of educational and technical institutions. In the last thirty years or so, 119 Universities, 5 Institutes of Technology, 150 Engineering Colleges, and about 100 Medical Colleges and 350 Polytechnics have been established: about 150,000 qualified scientific and technical personnel pass out every year from these institutions. The total stock of scientific and technically qualified manpower is estimated at 2.5 million, ranking India as the third largest complement of such manpower in the world, occupying a unique position among developing countries. About 130 specialised research laboratories and institutes have been set up. The areas of research embraces almost all sectors of the economy including agriculture, industry, medicine, atomic energy, space and defence. Apart from these major advances under the auspices of the Government, a large number of R & D laboratories have also been set up in the public and private undertakings.

"The substantial advances made in the field of science and technology have given a certain inherent strength to the Indian economy. The contribution of science in the field of agriculture, leading to the green revolution, is well-known. Significant achievements have been made in the frontier areas of technology like atomic energy and space. The absorption and development of technology in various other building blocs of the economy including industry, power, transportation, has been significant. It can be truly said that the progress made in science and technology has made it possible to achieve a high measure of self-reliance so that the momentum of growth of the economy can now be sustained substantially on domestic inputs, in machinery, processes and services.

"In an international environment, which is beset with grave economic and political problems, the infrastructure of human and material resources painstakingly developed during the last thirty years places India in an eminently strong position to sustain the growth curve amid unpredictable fluctuations. The challenges that our young nation faces at the threshold of the eighties are formidable. Most of the problems that confront the country are not of its own making. In a rapidly shrinking world, thanks to the integrating advances of science and technology, no nation can function in isolation. Apart from the political conflicts which portend explosive possibilities, the international economic situation has unforeseeably developed a hard-sell competitive aspect instead of enlarging complementarities. The steady growth of the world economies and expanding international trade which characterised the post-war era has chilled into uncommunicating compartments. The broad, inclusive outlook in the matter of promoting the economic development of the poorer countries through transfer of resources and technology has given way to protective mechanisms and restrictive aid with decreased flows. The international monetary system has come under considerable strain. Above all, energy costs are placing a great burden on the slender resources of the non-oil developing countries.

"Orderly economic progress has thus been rendered extremely difficult and external assistance and support can no longer be depended upon to find adequate resources for the economic advancement of the country. At the same time, the very process of development has generated new urges and demands among the under-privileged. The weaker sections of the population are no longer content to accept the privations of the earlier times. They rightly seek a share—and perhaps a larger share—of the benefits of economic development. The backward regions and the poorer classes can no longer be taken for granted. The poverty in the rural areas will need to be tackled on an urgent basis. Unless remunerative work opportunities are provided in the rural sector, the continuing influx of rural population to urban centres cannot be checked. Most of the metropolitan cities are bursting in the seams and the quality of life in the large cities has got eroded. All of these throw up challenges of a nature which are more complex than those faced in the earlier years.

"It is obvious that the security and the independence of the nation will depend largely to the extent to which we gear ourselves to meet these new challenges which have surfaced in the national and international scene. The emerging social tensions can be met only through a process of more rapid economic development. Given the unfavourable international situation, a rising tempo of economic growth can be sustained only through larger savings created within the economy and their optimal utilisation. The fundamental question turns on the measures to be taken to meet this imperative need. There are obviously several aspects to it, social, political and economic. But I dare say that one of the crucial determinants will be the application of science and technology.

"Much as our advance has been in the field of industrial and technological development, it would be unwise for us to ignore the weaknesses that have crept into the system. Basically, these are of two kinds. First, the overall efficiency of utilisation of our resources has not been as satisfactory as desired. Secondly, the technological and economic progress achieved in the country has yet to percolate to the large masses of our people in an adequate measure. Let me take the first point first. Over the previous Plan periods, and now in the Sixth Plan, we have made substantial investments in agriculture, industry and infrastructure. Are we getting the best out of these investments? Undoubtedly there has been an agricultural revolution. There has been a substantial increase in agricultural production. But a detailed analysis would show that there is a considerable disparity in the agricultural productivity as between the different regions of the country. While in some parts, agricultural productivity compares favourably with the standards achieved elsewhere in the world, agricultural revolution has bypassed a large part of our country. In the industrial field, while again there has been a significant increase in production, the productivity in industry, with some exception, continues to be low according to world standards. In several sectors, we remain uncompetitive in relation to international prices. The high cost of production of our industrial goods is not only a burden on the consumer but is a real loss to the economy in terms of reduced savings. The story is true to a more or less extent in several other sectors of our economy like irrigation, power and transportation.

"A developing country like ours necessarily has to be extremely conscious of securing the optimal benefits out of its investments. Even a cursory survey of the international scene will clearly indicate that the nations which have made the greatest advance are those which have been able to attain high levels of efficiency and productivity. Progress and productivity are, therefore, almost synonymous. While there are many factors which affect productivity, probably the key input to higher productivity is technology. In the context of the rapid changes that are taking place in the field of technology, it is, therefore, crucial that we attempt to remain contemporary with the international standards. Technology has to provide the basic thrust to improving efficiency, thereby augmenting the resources available for accelerating the process of economic development. In this year of productivity, we should, therefore, seek to extend the application of technology to attain greater efficiency and productivity in the different sectors of the economy.

"Self-reliance being a fundamental objective, it is necessary to ensure that technological progress is sustained largely through domestic effort. While we should certainly not hesitate to have access to technology from outside, it must be used to push up our level of self-reliance. The capacity to adopt, adapt and innovate must grow. For the nexus between technology-builders and technology-users has to be strengthened. Even the inter-institutional network in the field of technology is weak. No body seems to have an assigned role. As a result, while there are islands of individual excellence, competence generation is still at an unorganised low level. The tremendous network of men and institutions is substantially unutilized in the absence of Central perspectives and directions.

"There are a variety of problems, which are specific to the Indian scene, in the resolution of which adequate attention has still not been given by the scientists and technologists. These are problems, solutions to which cannot be found just through import of technology, for the simple reason that these problems are not relevant to other countries and, therefore, are of no interest to them to undertake research activities.

The R&D effort by way of finding a low cost substitute fuel for use in villages, an improved bullock cart, cheap housing based on local raw materials, improvised sanitation facilities, relevant in relation to the needs of the rural people are some examples of the kind of areas in which technology cannot be borrowed from outside but in which the required attention has yet to be paid by way of domestic R & D effort. The rising expectations of the under-privileged can be only met through a more discriminatory application of science and technology and directional change in our R&D efforts. This again is a challenge of the 1980's which can be neglected or ignored only at great peril. ☐

Medals and Commemorative Coins for IX Asiad

For the IX Asiad, there will be Competitive Medals and Commemorative Medals and commemorative and uncirculated coins.

The first category will be of competitive Medals. These Competitive Medals will be in Gold, Silver and Bronze. Each of these medals will be 60mm in diameter and there will be 564 each of Gold and Silver and 604 of Bronze. The Gold medals will have a gold-plated matt finish while the silver medals will have a frosted finish and the bronze ones will have an oxidized finish with slight toning. Each of the Competitive medals —Gold, Silver and Bronze—will have a ring and a ribbon and will be presented to the competitors in a medal box.

The next category is of Commemorative Medals. These medals will be made of bronze with an oxidized toned finish and have a diameter of 60 mm. There will be 20,000 of these medals as a Commemoration of the IX Asian Games, for distribution among all participants, technical officials, delegates and those who have been associated fully with the Special Organising Committee. There will be two categories of commemorative coins. The first category will be Proof coins of Rs 100, Rs, 10, 25 Paise and 10 Paise. The Rs 100 coins will consist of 50% silver, have a diameter of 44 mm and weigh 35g each, Rs 10 (cupro-nickel, 39 mm, 25g), 25 Paise coins (cupro-nickel, 19 mm and weigh 2.50g) and 10 Paise Coins (Al. Mg, 25mm and 2.30g).

There will be three different sets of Proof Coins: 4-coin set—Each set will have a coin of Rs 100, Rs 10, 25 Paise and 10 Paise. This set will be sold at Rs 300 with a surcharge of Rs 12 for packing and forwarding.

Two-coin set—Each of these sets will have a Rs 100 and Rs 10 coin and will be priced at Rs 250 with a surcharge of Rs 12.

Single coin — One coin of Rs 100, set in a plastic box, will be sold at Rs 200. Surcharge will be Rs 10 up to four single-coin sets. If more than four sets are ordered for this, then surcharge will be Rs 15.

Uncirculated Coins — In this set there will be one coin each of Rs 100 Rs 10 (priced at Rs 135). For a single Rs 100 coin the price will be Rs 120 and for a single Rs 10 coin the price will be Rs 15. Packing and forwarding charges will be extra at Rs 10 up to four coins or two sets and Rs 15 for five to ten coins or three to five sets.

Uncirculated coins do not have the same quality of finish as that of Proof Coins. ☐

AIU Library

Campus News

Post-centenary Silver Jubilee of Madras University

The University of Madras has drawn up a Rs. 25-crore perspective plan of development to be implemented over a period of 8 years in celebration of its post-centenary silver jubilee.

Apart from strengthening of the existing facilities and improvement of student amenities new departments and facilities are proposed to be created at an estimated cost of Rs 11.5 crores.

A Department of Performing Arts, an Auditorium, a Department of Jainism, a Centre for Gandhian Studies and Peace Research, a Department of International Understanding including International House for accommodating foreign students, a Centre for Indo-Japanese Studies and Literature, a Department of General Practice and Family Medicine are some of the new departments that are proposed to be set up. *Besides, the university* also proposes to start a printing press, organise transport facilities and housing facilities.

The proposals also include strengthening of Department of Management Studies, augmenting computer facilities with the starting of a Computer Science Department, modernising the university library and providing an auditorium-cum-seminar hall and a *science museum.*

Prime Minister Smt Indira Gandhi has been invited to inaugurate the Post-Centenary Silver Jubilee celebrations some time during the end of 1982 or early in 1983.

The main celebrations will last for three days, and President Zail Singh is to be invited for the valedictory function, according to the tentative programmes drawn up by the Celebrations Committee.

It is proposed to honour distinguished *statesmen and public* figures, outstanding men and women in sports and renowned artistes on the occasion, besides giving suitable recognition to the service rendered by the university staff.

A commemorative First Day Cover will also be brought out on the occasion and 50 university publications are to be released. Science exhibitions will be arranged as part of the jubilee celebrations at these Colleges. There will be special oratorical and essay competitions for college students, and tournaments and athletic meets, apart from Inter-University Cricket Tournaments for Bombay, Calcutta and Madras Universities. The highlights include a three-day cultural program*me at the University Auditorium.*

Seminar on law and social justice

The Department of Law, University of Bombay, proposes to organise a two-day seminar on Law and Social Justice under the auspices of the Indian Conucil of Social Science Research—Western Regional Council, Bombay *on 18th and 19th December 1982.* The aim of the Seminar is to audit the performance of Law in bringing about social justice and to suggest reforms in law to accelerate the pace of social justice as envisioned by the Constitution of India. The subject of social justice has received propenderous attention these days through many historic decisions of the Supreme Court consequent upon public interest litigation.

This is for the first time that such an advanced level seminar exclusively devoted to the upliftment of poor through Law is being held in Bombay.

Justice P.N. Bhagwati, Judge, Supreme Court of India has kindly consented to inaugurate the Seminar. The entire legal fraternity of the city of Bombay is likely to be represented at the Seminar. The Seminar participants include beside hon'ble Judges, eminent professors of Law and noted sociologists from all over the country.

Kant in India: A national seminar at NEHU

The Department of Philosophy of the North-Eastern Hill University, Shillong, organised a five-day National Seminar on Kant's Philosophy entitled "Kant in India." The seminar was sponsored by the University Grants Commission.

The Vice-Chancellor, Dr. B.D. Sharma delivered the inaugural address and participated in the discussion of various sessions.

The deliberations and discussions of the seminar centred around two focal points in Kant's philosophy; (1) Kant's place in the general intellectual tradition of the West and (2) the place of Kant-study in the general background of our own tradition of Philosophy. Some of the main themes dealt with in the seminar were: (a) Tension in Kant's *Critical Philosophy, (b) Freedom,* Responsibility and Agency, (c) Kant's Aesthetics, (d) Wittgensteins Reaction to Kant's Analysis of an Aesthetic Situation, and (e) A point of Reorientation in Kant. After each deliberation, a full session of three hours was devoted for debate and discussion on the paper.

The Seminar was attended and participated by the students of the Department, College students of the region and the teachers of the University and Colleges.

Prof.K.J. Shah of Poona University, Prof. R.C. Gandhi, Prof. B. Pahi of Rajasthan University, Prof. K. Bagchi, of Visva Bharati and Prof. Suresh Chandra of the Central University of Hyderabad were present as resource persons at the seminar.

Foundation course lectures at Dharwad

Dr. V.K.R.V. Rao, Hon. Director, Institute for Social and Economic Change, Bangalore and Sri Apa B. Pant, Former High Commissioner to U.K. and Ambassador to Indonesia and other countries recently delivered the Foundation Course Lectures at the Karnatak University, Dharwad.

Dr. V.K.R.V. Rao spoke on "India today and tomorrow". Addressing mainly the students, he traced graphically the Gandhian Movement which led to the emergence of free India. While conceding that India today has had creditable achievements on the economic front, he insisted that much of it has nullified by the fast growth of population. Also, much more could have been achieved, had their been a better sense of dedication and duty. He concluded by saying that the present attitude of self-aggrandisement and refusal to see the other-man's point of view would lead to a kind of crisis in the ninetees and a solution will be found only in the Gandhian approach to our problems.

Sri Apa Pant's talk on 'Relevance of Mahatama Gandhi today' was spread over two evenings. He began by reminding us that we remember the Mahatma today only vaguely and faintly; he is perhaps discussed only in seminars. Then he went on to consider how Gandhi is not only relevant but even practical today. The very first aspect of Gandhism is clear thinking, which we have ignored. Centralization of power and spending monumental amounts on armaments are the consequences of a lack of clear thinking. Gandhi's dream was to banish poverty and exploitation and hence he strongly advocated de-small, centralization of power and self-sufficient communities — 'grama rajya'—where duties come before rights and where one learns to discipline his wants and needs. A community built on the principle of caring and sharing, intelligence, competence and compassion would be its watchwords. Sri Pant emphasised the need of dedicated believers in the Gandhian approach to establish such small communities all over India to enlighten the rest of its efficacy and relevance.

UGC British literature seminar at Madurai

Under the auspices of the UGC a seminar on "Post-1945 British Drama and Poetry" was held at the Department of English and Comparative Literature, Madurai-Kamaraj University from the 23rd of August to 3rd September 1982. This seminar is conducted twice every three years and this year UGC chose to run it at Madurai-Kamaraj University serving the academic interests of the east and south and Panjab University, Chandigarh, the west and north of India. As per the recommendations of the Screening Committee appointed for the purpose, about 40 outstation delegates and 10 local participants were invited. The resource persons were Prof. C.B. Cox and Prof. M.J. Banham from England and Dr. Isaac Sequeira from Hyderabad. The three seminar teachers dealt with various aspects of recent developments in post-1945 British poetry and drama, and discussed individual poets like Ted Hugher and Philip Larkin and productions of the contemporary television drama.

K.U. needs Rs 3-core grant : VC

Kurukshetra University needs a grant of Rs 3 crore against Rs 1.75 crore being provided by the State Government during the current financial year to meet its requirements.

This was disclosed by the Vice-Chancellor, Dr. G. C. Gupt, in a press conference recently.

Commenting on the financial position of the university, he said that in 1981-82 the expenditure of the university had increased from Rs 251 lakh to Rs 354 lakh.

During this year the university got a grant of Rs 200 lakh against Rs 167 lakh during the previous year.

The main reasons for the increase were the payment of enhanced salaries to the non-teaching staff, payment of the balance of the additional dearness allowance, increase in the provident fund and gratuity and other allowances.

New short term courses at NEHU

The North-Eastern Hill University (NEHU) has decided to start Short term Certificate and Diploma Courses in Statistics.

The Certificate Course is open to students who have passed the High School Leaving Certificate or the Pre-University with Mathematics as one of the main subjects, while the Diploma Course is intended for the benefit of graduates who have studied Mathematics upto the Pre-University level.

The objective of these courses is to provide students with better knowledge in the fields of this discipline and to furnish information of the Agencies and Institutes connected with this subject for future reference and employment of students.

The Certificate Course and the Diploma Course cover the duration of six months and one year, equivalent to one and two semesters respectively.

Oriental conference memorial lectures

Principal B.P. Bhattacharya of the Government Sanskrit College, Calcutta, delivered the first series of the 28th All India Oriental Conference Memorial Special Lectures on 22nd 23rd and 25th October 1982 at the Karnatak University, Dharwad.

The series was inaugurated by Dr. R.C. Hiremath, Former Vice-Chancellor, of the University. Dr. K. Krishnamoorthy, Professor and Head of the Department of Sanskrit welcomed the guests and presided on all the three days.

Three lectures were delivered by Prin. Bhattacharya on the topic of 'Anandavardhna vis-a-vis Riti School of Poetics', 'Panirian

Grammar and Sanskrit Poetics' and 'Appropos Man and Nature Sanskrit Aesthetics'.

The talks were organised by the Prasaranga of the University. The special lecture series will be an annual feature.

Workshop on quantitative analysis in Economics

A UGC sponsored workshop on quantitative analysis in Economics was held in the Department of Economics at the Gorakhpur University recently.

The workshop was inaugurated by Dr. T.S. Papola, Director, Giri Institute of Development Studies, Lucknow. In his inaugural address Dr. Papola underlined the importance of quantitative and qualitative methods in economic analysis for illustrating and supporting and also for deriving economic propositions. The uses to which they have been utilized have varied from time to time and place to place, mainly depending on the dominant trend in the philosophy and method of science.

Dr. Papola highlighted the question of measurability of large number of economic variables and predictability of organic behaviour of any economy. Of late there is skepticism towards the use of highly complicated quantitative methods and a strong literary institutional tradition has emerged.

The valedictory address was delivered by Shri I.Z. Bhatty, Director-General, National Council of Applied Economic Research, New Delhi.

Festschrift volume to honour Prof. G.N. Ramachandran

Students and close academic associates of Prof. G.N. Ramachandran propose to celebrate suitably his 60th birthday. An organising committee has been constituted for the purpose.

Prof. Ramachandran, it is reported, has published over 200 research papers and more than a dozen volumes on Molecular Biophysics and Crystallography. The committee proposes to produce Festschrift Volume in his honour and also hold a special symposium on Molecular Biophysics and Crystallography from December 20 to 31, 1982.

The Festschrift Volume will contain articles contributed by leading scientists on Crystallography and Molecular Biophysics. Fellowships, prizes and awards are also proposed to be instituted in his honour from the funds to be raised.

A joint project in Telugu

The University Grants Commission, it is reported, has agreed to provide Rs. 10,000 for a research project for a linguistic and socio-cultural study of Yerukala to be jointly undertaken by the Departments of Telugu and Anthropology of the University of Madras.

Training programme on manpower and employment planning

The Institute of Applied Manpower Research, New Delhi, proposes to organise a training progrmme on Manpower and Employment Planning at the National and State levels from December 8 to 15, 1982.

The objective of the seminar is to impart knowledge on broad perspective of employment and manpower planning to those responsible for developing programmes and policies for manpower planning and utilisation. The programme *inter alia* covers inter-relationships among manpower planning, educational planning and economic planning; manpower and employment planning at the State/District level; techniques of estimating manpower demand and supply; conceptual issues of measuring employment, unemployment and under-employment; and manpower and career planning in an organisation/department.

Further details with regard to participation in the programme may be had from the Programme Coordinator, Institute of Applied Manpower Research, I.P. Estate, New Delhi-110002.

UN week at OU

Inaugurating the UN Week and the UNESCO Anniversary Celebrations organised by the Osmania University Library recently, Prof. B.S. Ramakrishna, Vice-Chancellor of University of Hyderabad, said the country should get ready to use sophisticated information systems for storing and retrieval. He further said the libraries will continue to play a very vital role in the development process with modern technology.

Mr. N.B. Inamdar, Librarian, in his welcome said a weeklong celebrations are organised to focus the attention of students and teachers on UN. He said the library had received a gift of 400 books from UNESCO which were exhibited. Prof. Ramakrishna also inaugurated the UNESCO Book Exhibition.

Evening of folk dance at NEHU

The Centre for Creative Arts, NEHU, organised the Eevning of Folk Dance and Music on October 19, '82 at Mayurbhanj Complex. The programme was devised to give incentive to Students and research scholars of the University for improvement of extra-curricular activities.

Seventeen folk dances and songs of different tribal groups of the North-Eastern Region were presented at the function.

The Khasi students presented four folk songs and a dance and the Naga students staged one folk dance and a song, while the Mizo, Manipuri and Assamese students featured a folk song and dance. three songs and a dance and one song and dance respectively.

The progromme was conducted for the selection of the troupes to represent Meghalaya, Mizoram and Nagaland at the Youth Festival which will be held at New Delhi in November this year. Dr. Hamlet Bareh, Reader-incharge who was also the Chief Organiser of the programme appealed to the student artistes to put in their efforts in preparing their troupes as perfectly as possible so that items presented from the Region at the Festival will be appreciated.

Course in Indian Music at Madras

The University of Madras has introduced a B.A. Degree course in Indian Music this year, to be conducted by the Department of Indian Music. This provides for the first time an opportunity to men also to pursue a degree course in Music, a facility not available so far in this University.

News from Agril. Varsities

MPAU hosts regional committee meeting of the ICAR

A meeting of the Regional Committee No. VII of the Indian Council of Agricultural Research, New Delhi for Maharashtra, Western and Central Madhya Pradesh and Goa, Daman and Diu was held on 16th and 17th October in conjunction with the 75th anniversary year of the Poona Agricultural College. Inaugurating the meeting Shri Bhagwantrao Gaikwad, Minister for Agriculture, Maharashtra State, emphasised the need for intensifying research in horticultural crops, dryfarming technology, reclamation of saline and alkaline soils, storage of onions and grains and fisheries development.

The function was presided over by Dr. O.P. Gautam, Director General, ICAR, New Delhi. In his address Dr. Gautam expressed warm greetings and hearty felicitations for completing glorious 75 years by the Poona Agricultural College. He expressed the objective of this meeting is to review old programmes in order to find out gaps in research and to think for new programmes. Earlier Dr. D.K. Salunkhe, Vice-Chancellor gave an account of the distinguished personalities produced by the Poona College. The committee discussed at length the research activities of the ICAR projects and Agricultural Universities in the region. The new proposals of research in Maharashtra, Western and Central M.P. and Goa, Daman and Diu were also discussed. The Vice-Chancellors of the Agricultural Universities, Research Directors, Incharge Scientists of the research projects attended the meeting.

Australian scientists identify Ryegrass Toxic factor

Australian veterinary scientists have identified the poison responsible for the lethal animal disease annual ryegrass toxicity.

Research by the Commonwealth Scientific and Industrial Research Organization's (CSIRO) Division of Animal Health and the Western Australian Department of Agriculture has led to the discovery that the poison is composed of a group of toxins closely related to a powerful but dangerous class of antibiotics.

The antibiotics, called tunicamycins, were isolated by Japanese scientists in the 1960s during a major screening program for new antibiotic compounds. Because they were toxic, they were never used, even though they possessed strong anti-viral and anti-bacterial properties.

Australian scientists have now discovered that the toxins responsible for killing livestock in pockets of grazing country in South Australia and Western Australia overlap in chemical structure with the tunicamycins.

The symptoms of annual ryegrass toxicity are consistent with the known effects of the tunicamycins. Its victims are sheep and cattle grazing annual ryegrassinfested pasture. The scientists are now exploring possibility of developing vaccine against the toxins. [Courtesy: *Australian Information Service Agricultural Newsletter*]

New crop rotation technology

The G.B. Pant University of Agriculture & Technology has, by eleven rotations with two crops and seven rotations with three crops, produced the highest average yield of 129.25 quintals per hactare in paddy-wheat rotation followed by 112.24 quintals per hectare in maize-wheat. Out of three pulses—soyabean, arhar and urd—the soyabean—wheat rotation has also given a yield of 3250 kgs of soyabean and 4125 kg. of wheat per hectare.

The concept of maximum production per year per unit of land, was started on a modest scale in 1965. Under this scheme national demonstrations have been conducted by the university agro-scientists with two and three crops in rotation by using the high-yielding varieties with recommended package of practices under the guidance of a nationl demonstration committee of experts set up by it.

The demonstrations were laid out in the famers' fields at twelve locations in eleven districts of the state—Nainital, Chamoli, Bareilly, Budaun, Bijnor, Shahjahanpur, Rampur, Moradabad, Meerut Bulandshahr and Muzaffarnagar. Two of the districts—Bareilly and Budaun—are under the intensive programme of the national demonstration scheme financed by the Indian Council of Agricultural Research (ICAR).

Rice straw not being used

Farmers attending a meeting at the Punjab Agricultural University recentry expressed great resentment against banking and other authorities for not assisting in the industrial uses of rice straw which the famers have to burn.

The Vice-Chancellor Dr Sukhdev Singh said that 5 million

Personal

1. **Prof. G. Ram Reddy, Vice-Chancellor, Osmania University, has been appointed Vice-Chancellor of the newly established Open University at Nagarjunasagar in Andhra Pradesh.**
2. **Dr. A.P. Mathur has taken over as the Vice-Chancellor of Agra University.**

tonnes of rice straw was going waste every year. Burning it polluted the atmosphere also, he said. The University, he said, had evolved the technology of making pellets which were a good substitute for coal in homes, in factories and brick kilns. Sugar factories could also use it as a substitute for baggasse which was excellent raw material for making paper.

Another point on which the farmers expressed their unhappiness was the circulation of the seed of non-descript varieties of crops by interested parties who were able to insert news about them in the major English daily of the State. The farmers who bought the seed of those varieties after reading the newspaper came to harm.

The Director of Research, Dr S.S. Johl said that all the seed material available in the country or anywhere else in the world was tested by the University for its suitability under Punjab conditions. Whatever varieties were found suitable were recommended by the University in its publications. Farmers should rest assured that whatever was offered by odd sources had already been tested by the University and rejected.

The farmers wanted a laboratory to be set up in Abohar area to test the nutritional deficiency in fruit plants.

Chinese scientists visit PAU

Two agricultural scientists from Peoples' Republic of China, Professor Liuxun-hao and Professor Han Chun-ru from the Beijing Agricultural University visited the Punjab Agricultural University from 18 to 23 October. They saw the demonstration plots of Department of Agronomy and held discussions with scientists on multiple-cropping. They also met some farmers in Kanganwal and Hambran villages of Ludhiana district.

Earlier they had visited the agricultural institutions in Bangalore, Coimbatore and Hyderabad.

The visit of these foreign scientists had been sponsored by the China Association for Science and Technology, Beijing.

New building for seed processing unit at MPAU

A new building costing Rs. 3.5 laks in the Seed Processing Unit consisting of Breeder seed unit and seed store unit constructed under National Seed Project was inaugurated by Dr. V. Venkatesan (IAS), Secretary, Agriculture and Co-operation Department, Government of Maharashtra on 14th October at the Central Campus of the Mahatma Phule Agricultural University, Rahuri. A foundation stone was laid by Smt. Shashi Mishra, Joint Secretary for Agriculture and Co-operation Department, Government of Maharashtra for the proposed building of Foundation Seed Unit. The cost of this building would be Rs. 6.5 lakhs. This new seed processing unit will be equipped with air conditioning dehumidifying machinery and control seed unit. The National Seed Project (NSP) will finance Rs. 15 lakhs towards the equipping of these units. These activities will help in strengthening the seed activities of this university.

Australian scientists develop plant anti-freeze

Scientists in Australia's island State of Tasmania have developed a special anti-freeze to protect plants from frost damage.

Mr Steve Wilson, a horticulturist with the Tasmanian Department of Agriculture, said the anti-freeze solution, a biodegradable detergent called Teric 12A23B, lowered the temperature at which water would freeze in the plant by between 45 and 55 per cent.

"Our initial commercial tests have been with blackcurrants but the concept will be applicable to grapes, wheat, potatoes, beans and similar crops," he said.

Mr Wilson said development of the anti-freeze solution would enable crops to be planted earlier, increasing the time available for harvesting.

"The solution is applied in spring as the flower buds are beginning to open and protects the plants from critical frost damage for the next couple of months," he said.

The anti-freeze is absorbed quickly through the leaves, and tests so far have shown that little, if any, is transmitted to the fruit. The same detergent is used to treat bloat in cattle with no apparent side effects.

The research, which began in June 1979, has developed to a stage where the Department of Agriculture also is examining natural polymers, including derivatives of seaweed alginates, for use in an anti-freeze solution.

Mr Wilson said the Australian National Health and Medical Research Council and ICI Australia were examining the anti-freeze solution for its commercial potential. [Courtesy : *Australian Information Service Agricultural Newsletter*]

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RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Rema, B. Algebra and combinatorics. University of Kerala. Dr. Mohamed Ismail Jinnah, Department of Mathematics, University of Kerala, Karivattom.

Statistics

1. Banerjee, Shakti. Some combinatorial problems in incomplete block designs. University of Indore. Dr Bhagwandas, Head, Department of Statistics, University of Indore, Indore.

Physics

1. Bedi, Subhash Chandra. Hyperfine interactions by DPAC techniques. Panjab University. Prof H.S. Hans, Department of Physics, Panjab University, Chandigarh.

2. Daddi, Keertikumar Surendra. Some luminescence studies of alkaline earth sulphide phosphors. Shivaji University. Dr C.S. Shalgaonkar, Department of Physics, Shivaji University, Kolhapur.

Chemistry

1. Bimlesh Kumar. Physico-Chemical studies of industrial waste water of a few textile industries in Kanpur. Kanpur University. Dr. H.C. Arora, Department of Chemistry, Kanpur University, Kanpur.

2. Dikshit, Savita. Interactive studies of alkali and alkaline earth benzoates in polar and non polar media. University of Indore. Dr. N.S Poonia, Head, Department of Chemistry, University of Indore, Indore.

3. Govind Singh. Amino acid metabolism in helminths Kanpur University. Dr. VML Srivastava, Department of Chemistry, Central Drug Research Institute, Lucknow.

4. Hongekar, Mahadeo Laxman. Kinetics and Mechanism of oxidation of some organic compounds. Shivaji University. Dr. J.B. Patil, Department of Chemistry. Shivaji University, Kolhapur.

5. Pandey, Kalpna. Studies on the reactivity of some non stabilised and stabilised sulfonium yields. Kanpur University. Dr. Saroj Malik, Department of Chemistry, A.N D M.M. College, Kanpur.

Earth Sciences

1. Mathai, Thomas. Geology, geochemistry and Mineralisation along the Achenkovil Shear Zone. University of Kerala. Dr. P.T. Roy Chacko, Head, Department of Geology, University of Kerala, Karivattom.

1. Varkey, M.J. Salt balance and mixing in the Bay of Bengal. University of Kerala. Dr. J.S. Sastry, Scientist, National Institute of Oceanography, Dona Paula, Goa.

BIOLOGICAL SCIENCES

Marine Biology

1. Vincent, S.G. Demospongia of the South West Coast of India with particular reference to those which destroy the commercially important Molluscan beds. University of Kerala. Dr. P.A. Thomas, Scientist S.1., Central Marine Fisheries Research Institute, Vizhinjam, Kerala.

Botany

1. Patil, Dhanapal Dada. Aeromycological studies over some important field of Nipani region. Shivaji University. Dr. U.K. Kulkarni, Head, Department of Botany, Shivaji University, Kolhapur.

Zoology

1. Khadka, Ram B. Ecological Energetics. University of Delhi. Dr. T.R. Rao, Department of Zoology, University of Delhi, Delhi.

2. Sunita Rani. Studies on the salivary gland chromosomes of some anopheline masquitoes (culicidees : deptera). Punjab University, Dr. Sudarshan Chaudhry, Lecturer, Department of Zoology, Punjab University, Chandigarh.

3. Verma, Kanak. Studies on the trematode parasites of some vertebrates of Patna and its suburbs and some haematological investigations on Bufo melanostictus, carrying cestode infestations. Patna University. Dr. Devendra Prasad, Reader, Department of Zoology, Patna University, Patna.

Agriculture

1. Ashok Kumar. Agricultural finance. Banaras Hindu University. Dr. R.S. Dixit, Department of Agricultural Economics, Banaras Hindu University, Varanasi.

2. Banerjee, Bhartendeu. Studies on economic aspects of pest management. Banaras Hindu University. Prof Lallan Rai, Department of Entomology & Agricultural Zoology, Banaras Hindu University, Varanasi.

3. Dash, Dusmanta Kumar. Agronomic studies of wheat under dry land condition. Banaras Hindu University. Dr. N.M. Mishra, Department of Agronomy, Banaras Hindu University, Varanasi

4. Devendra Singh. An ecological study of some important soil insects. Banaras Hindu University. Dr. Janardan Singh, Department of Entomology and Agricultural Zoology, Banaras Hindu University, Varanasi.

5. Dinesh Singh. Mutagenesis in lentil. Banaras Hindu University. Dr. R. [illegible]. Singh, Department of Genetics & Plant Breeding, Banaras Hindu University, Varanasi.

6. Garg, Rashmi. Effect of radiation on acetyle cholinesterase in diapausing embryo of Indian gypsy moth, Lymantria obfuscata (Walk). Banaras Hindu University. Dr H.N. Singh. Department of Entomology and Agricultural Zoology, Banaras Hindu University, Varanasi. D. (Smt) K. Sahani, Department of Entomology and Agricultural Zoology, Banaras Hindu University, Varanasi.

7. Jaya Prakash, Mudimbi. Mutagenesis in plant tissue cultures. Banaras Hindu University. Dr B.D. Singh, Department of Genetics & Plant Breeding, Banaras Hindu University, Varanasi.

8. Jayant Kumar. Studies on the physiological basis of variation in crop yield. Banaras Hindu University. Dr. D.N. Tyagi, Department of Plant Physiology, Banaras Hindu University, Varanasi.

9. Kanhaiya Singh. Gap and constraint analysis of wheat productivity in U P. Kanpur University. Dr. J.P. Yadav, Department of Agricultural Extension, Chandra Shekhar Azad University of Agriculture & Technology, Kanpur.

10. Mishra, Navneet Kumar. Nutritional studies on brinjal. Banaras Hindu University. Dr. A.M. Maurya, Department of Horticulture, Banaras Hindu University, Varanasi.

11. Muthoo, Autar Krishan. Studies on effect of media and nutrients on rooting of cuttings. Banaras Hindu University. Dr. A.M. Maurya, Department of Horticulture, Banaras Hindu University, Varanasi.

12. Paliwal, Rajesh. Agronomic studies on gram. Banaras Hindu University. Dr. N M. Mishra, Department of Agronomy, Banaras Hindu University, Varanasi.

13. Prashant Kumar. Agricultural marketing. Banaras Hindu University. Prof. S.B.L. Gupta. Department. of Agricultural Economics, Banaras Hindu University, Varanasi.

14. Sesha Rao, Bhogireddi. Genetical studies on cowpea Rhizobium and their viruses. Banaras Hindu University. Dr. Banshi Dhar, Head, Department of Genetics & Plant Breeding, Banaras Hindu University, Varanasi.

15. Sharma, Pramod Kumar. Farm Management. Banaras Hindu University. Prof. S.B L. Gupta, Department of Agricultural Economics, Banaras Hindu University, Varanasi.

16. Singh, Anjani Kumar. Agricultural marketing Banaras Hindu University. D . B D. Shukla, Department of Agricultural Economics. Banaras Hindu University, Varanasi.

17. Singh, Hemendra Pratap. Genetics of economic characters in mustard. Banaras Hindu University. Dr. A.K. Richharia, Department of Genetics & Plant Breeding, Banaras Hindu University, Varanasi.

18. Singh, Indra Sen. Genetics of Nitrogen fixation in mungbean. Banaras Hindu University. Prof. B.D. Singh, Department of Genetics & Plant Breeding, Banaras Hindu University, Varanasi.

19. Singh, Krishan Murari. Farm Management. Banaras Hindu University. Dr. R.S Dixit, Department of Agricultural Economics, Banaras Hindu University, Varanasi.

20. Singh, Suntosh Kumar. Study on chromosome differentiation and another culture use in pearl millet. Banaras Hindu University. Dr. U P. Singh, Department of Genetics & Plant Breeding, Banaras Hindu University, Varanasi.

21. Singh, Virendra Pratap. Seed control in rice. Banaras Hindu University. Dr. R.P. Singh Head, Department of Agronomy, Banaras Hindu University, Varanasi.

22. Subramanyam, M. Basic and applied studies of soils of Eastern U.P. with particular reference to micronuturients. Banaras Hindu University, Dr. B. Singh, Department of Soil Science and Agricultural Chemistry, Banaras Hindu University Varanasi.

23. Upadhyaya, Subhash. Chandra. Farm finance. Banaras Hindu University. Prof. S.B.L. Gupta, Dapartment of Agricultural Economics, Banaras Hindu University, Varanasi.

24. Zowain, Adnan Abdal H. Use of antitransnitrants in wheat grown under rainfed condition. Banaras Hindu University. Dr. N.M. Mishra, Department of Agronomy, Banaras Hindu University, Varanasi.

Animal Husbandry

1. Maurya, Birendra Kumar. Physiological and nutritional studies on crossbred cattle. Banaras Hindu University. Dr. D N. Pande, Department of Animal Husbandry & Dairying, Banaras Hindu University, Varanasi.

2. Shukla, Pankaj Narayan. Designing of equipment for Khow Manufacture on domestic scale. Banaras Hindu University. Dr. N.N. Pandita, Department of anymal Husbandry & Dairying, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Basappa, Agase Shivachandra. Differential equations in abstract spaces. Andhra University.

2. Das, Surendra Kumar. Effect of magnetic force on the motion of a system of two cable-connected satellites in orbit. Bihar University.

3. Kundu, Jagadischandra. Some problems on bending and vibration of elastic plates and shells. University of Calcutta.

4. Mitra, Pasupati. On some aspects of two-phase flow problems. University of Calcutta.

5. Mukhopadhyay, Tara. Problems of gas motion in the central region of disk galaxies with special reference to the explosive events in thesis nuclei. University of Calcutta.

6. Qureshi, Kutbuddin. Some problems of approximation theory. University of Sagar.

7. Satyanarayana. Kottooru. On some translation planes of square and cube orders and their translation complements. Osmania University.

8. Vinod Kumar. Some reflections on convergence spaces. Indian Institute of Technology, Delhi.

Astronomy

1. Soman, Hari Singh. Development of echosonde and boundary layer studies of the atmosphere. Punjabi University.

Physics

1. Arya, Shish Pal Singh. Electrical properties of thin oxide films. Punjabi University.

2. Biswal, Kedarnath. Field theoretic model of composite hadrons. Utkal University.

3. Chakraborti, Pradip Kumar. Investigations on some equilibrium and non-equilibrium properties of liquids and solids University of Calcutta.

4. Datta, Santanu. Biophysical studies on re-association kinetics of DNA. University of Calcutta.

5. Dhake, Kamalakar Pundalik. Thermoluminescence of NaCl ; Ca and its application in radiation dosimetry. M.S. University of Baroda.

6. Dixit, Anilkumar Dattatraya. Excitation and emission spectra of thalium-doped potassium bromide. M.S. University of Baroda.

7. Handoo, Bharat Bhushan. Quantum chromodynamics and heavy quark interaction. University of Kashmir.

8. Hesiza, Madan Lal. Study of properties of some nuclear levels. Punjabi University.

9. Jallu, Mohd Shafi. Symmetry in Physics and it applications. University of Kashmir.

10. Mummigatti, Veerappa. Malleshappa. Astrophysically significant molecules: Study of franck condon factors, R-centroids and electronic transition moments. Karnatak University.

11. Prasad Rao, Kolluru Kali. Quadrupole antishielding factors for ions from non-orthogonal Hartree-Fock perturbation theory. Berhampur University.

12. Sahu, Trinath. Theory of magnetic susceptibility of tetrahedral semi-conductors. Berhampur University.

13. Subba Rao, Dwaraka Bhamidipati. High resolution spectroscopy in a few odd mass nuclei. Andhra University.

14. Tripathi, Gouri Sankar. Theory of many body and spin orbit effects on knight shift of solids. Berhampur University.

Chemistry

1. Baljinder Singh. Chemistry of biological activity of zerumbone and its derivatives. Punjab Agricultural University.

2. Chattopadhyay, Sankarprasad. Solvent effect on thermodynamic and spectrophotometric properties of charge transfer complexes. University of Calcutta.

3. Das, Durga Prasad. Studies on high polymer systems involving metal and non-metal ions. Utkal University.

4. Dash, Kailash Chandra. Complexes of some transition metals and gold with N or P coordinating ligands. Utkal University.

5. Ghosh, Sanjibchandra. Spectroscopic investigations of some organic compounds containing multiple n-centres. University of Calcutta.

6. Kapoor, Adarsh. Studies on Steroid contraceptives and their analogues. Panjab University.

7. Kapur, Neeta. Some investigations on the donor-acceptor reactions of organoxy/organoxy organo amino silanes. Panjab University.

8. Karak, Harshaberdhan. Nitrosocomplexes of chromium. University of Calcutta.

9. Mandal, Ahindrakumar. Thermodynamics of complexes in mixed solvents. University of Calcutta.

10. Nanda, Ashok Kumar. Studies on photolysis of 1-0-toluy 1-3, 4 dihydroisoquinolines leading to protoberberine alkaloids. Panjab University.

11. Negalur, Shrikant Hanamant. Study of metal complexes. Karnatak University.

12. Pattanashetti, Panchaling P. Reactions of mesoionic compounds and their biological evaluation. Karnatak University.

13. Rajni. Amperomertic determination of some metal ions using organic ligands. Maharshi Dayanand University.

14. Ravinder Kumar. Photolyses of n-substituted amines. Punjabi University.

15. Ray, Subodh Kumar. Studies on the oxidation of aromatic hydrocarbons and nitrogenous heterocycles. Indian School of Mines, Dhanbad.

16. Ray, Swapankumar. Phytochemical studies on Indian medicinal plants. University of Calcutta.

17. Roop Kumar, G. Effect of anions and sulphur compounds on the electro-deposition of silver. Bangalore University.

18. Sahu, Bijayakumar, Geochemical studies. on beach sands of some coastal parts of Orissa state. Utkal University.

19. Sarma, Uma Shankar. Studies on fibre hemicelluloses. University of Calcutta.

20. Sarpal, Narendra Singh. Studies in the kinetics of the oxidation of some N-Phenyl-Benzohydroxamic acids. Jiwaji University.

21. Sharma, Vijay. Chemistry of fused monobromacetic acid as non aqueous solvent. Punjab University.

22. Shingal, Poornima. Studies on water and surfacial sediments of Dal lake. University of Kashmir.

23. Singh, Birendra Prasad. Studies in oxidation of Hydroxylamine. University of Bihar.

24. Srinivasa Rao, Narasimhadeva Venkata. Analytical applications of cacotheline. Andhra University.

25. Vidyarithi, Ram Pukar. Physico-chemical studies of some nucleic acid-protein interactions. University of Bihar.

26. Yadav, Veejendra Kumar. Studies in terpenes. M.S. University of Baroda.

Earth Science

1. Kuppuswamy, Sriram. Geologic and geomorphic studies with special reference to ore deposits in Goa. Osmania University.

2. Mohana Rao, N.V. Geochemical factors influencing the distribution of fluoride in rocks, soils and water sources of Nalgonda District A.P., India. Osmania University.

3. Narsimha Reddy, M. Petrological and geochemical studies of the Chimalpahad Anorthosite Complex, Khammam District, A.P. Osmania University.

4. Rajeswara Rao, Vaddi. Spectral studies of transient systems in the post monsoon season over India. Andhra University.

5. Ratnakar, J. Petrological and geochemical studies on the purimetla alkaline pluton, Prakasam District, A.P. Osmania University.

6. Srivastava, Deepak Chandra. Structural analysis of the precambrian iron ore group rocks of Chakradharpur Ongarbira-area, District Singhbhum, Bihar. Indian School of Mines, Dhanbad.

7. Vidyasagarchary, D. Orientation geochemical survey in and around Mailaram copper deposit area, Khamman District, A.P., India. Osmania University.

Engineering & Technology

1. Chattopadhyay, Chanchal Kisor. Studies on microwave properties of semiconductors and semiconductor microwave circuits. University of Calcutta.

2. Subhash Chandra. Solar thermal modelling of buildings and space conditioning systems. Indian Institute of Technology, Delhi.

BIOLOGICAL SCIENCES

Anthropology

1. Jaikishan, Geddada. Physical anthropology of Konda Kammaras. Andhra University.

2. Lakshmi, Kumari Bulusu. Dermatogylphics of congenital malformations of heart. Panjab University.

Biochemistry

1. Nandi, Asit Kumar. Biology and biochemistry of the basic proteins in fish spermatozoa. University of Calcutta

2. Pal, Hemlata. Some physico-chemical properties of the binding of 4,4 diaminodiphenyl sulphone to the plasma proteins. University of Calcutta.

Marine Biology

1. Balaraman, S. Studies on the poeci'ostomations copepods of the families bomolochidae, taemiacanthidae, shiinoidae and choudracanthidae University of Kerala.

2. Nayak, R. Rajendra. Studies on the biological effects of some pollutants on a fresh water fish, Rasbora daniconius (Ham.). Mangalore University.

3. Thomas, P.J. Studies on the feeding habit and alimentary tract of the developmental stages of a few selected teleostean fishes. University of Kerala.

4. Vidyasagar, Jonnavithula. Taxonomic study of the families synodidae and harpadotidae of the East coast of India. Andhra University.

Microbiology

1. Mehta, Bina Jamnadas. Protease and regulation of carotenagenesis in Blakeslea trispora. M.S. University of Baroda.

2. Nautiyal, Chandra Shekar. Studies on some biochemical aspect of Rhizobium sp. M.S. University of Baroda.

Botany

1. Bandyopadhyay, Malyasri. Studies on the toxigenic fungi and mycotoxin production in foodstuffs. University of Calcutta.

2. Chakraborti, Swapna. Comparative morphology and taxonomic value of foliar sclereids in certain taxa of angiosperms. University of Calcutta

3. Chaudhuri, Alpana. Use of chromosome banding techniques in determination of chromosomal nature. University of Calcutta.

4. Chaudhuri, Ushasi. Biochemical and genetical studies or acetate non-utilising mutants of Aspergillus terrens. University of Calcutta.

5. Garg, Vipin. Cytotaxonomical and numerical chemotaxonomic studies in the numbers of the subtribe orchidinae of orchidaceae. Karnatak University.

6. Janardhan Rao, Ch. Ecology of algae in a polluted channel entering the river Mossi at Hyderabad. Osmania University.

7. Koul, Ajay Kumar. Structure and primary productivity of ground vegetation in Nilnag Forest (Kashmir Himalayas). University of Kashmir.

8. Labh, Lakshman. Cytological and cultural studies of charophytes of North Bihar. University of Bihar.

9. Mohanty, Prabhat Ranjan. Studies on the Gracilaria verucose (Hudson) Papenf of Chilka lake. Berhampur University.

10. Sachdeva, Saroj. In vitro multiplication of apple, Malus pumila Mill var. Golden Delicious and chikoo, A. chras Sapota Linn. Panjab University.

11. Sandhya, Kiron. Subaerial flora of Hyderabad and its environs. Osmania University.

12. Saxena, Neeraj. Studies on cell wall degrading enzymes in relation to fungal pathogenesis. University of Saugar.

13. Somal, Priti. Microbial transformation of steroids. University of Saugar.

14. Somanadham, Kesanakurti. Studies on the cytogenetics of some induced mutants in Pennisetum americanum (L) Leeke. Andhra University.

15. Varghese, Thomas T. Effect of ultrasonic irradiation of seeds of Phaseolus aureus Roxb on germination and growth of seedlings. M.S. University of Baroda.

16. Verma, Renu. Effect of some fungi toxicants on the production of cellulolytic enzymes by two phytopathogenic fungi. University of Bihar.

17. Vijaya Bai, K. Cytogenetical studies in the genus Ipomoea. University of Kerala.

Zoology

1. Ananda Rao, B. Study of the nematode community structures of three river tanks-Hussain Sagar, Himayath Sagar and Osman Sagar of Hyderabad (A.P.) with special reference to water pollution. Osmania University.

2. Datta, Sujit Kumar. Effect of endrin on some major carps of West Bengal. University of Calcutta.

3. Dutta, Subir. Some aspects of Aphid (homoptera: insecta), taxonomy and biology of Darjeeling District and Bhutan. University of Calcutta.

4. Govinda Rao, Masina. Studies on the terrestrial gastropods of Visakhapatnam with special reference to Glessula indica Gude. Andhra University.

5. Jayanad Rao, K. Cytogenetical studies on some digenetic trematodes. Kakatiya University.

6. John, Thommandru. Studies on the associates crinoids of Waltair coast. Andhra University.

7. Kapil, Neeru. Male gonads and adrenocortical activity of immature rats. Jiwaji University.

8. Kishore, Badugu. Studies on the organisation of the nervous system in the some digenetic trematodes and cestodes. Andhra University.

9. Kurkadli, Huchchappa Kumarappa. Biology of reproduction of Eri silkworm, Philosamia ricinai. Karnatak University.

10. Kurup, N. Chandrasekhara. Some aspects on the reproductive biology of collembola. University of Kerala.

11. Mrutyyunjaya Devi, Valluri Sree. Studies on cestodes of elasmobranchs of Andhra coast with observations of host parasite relations. Andhra University.

12. Mukhopadhyay, Ananda. Taxonomy of lygacid bugs (heteroptera: insecta) from West Bengal with aspects of bioecology of some representative species, University of Calcutta.

13. Naqash, Showkat Ahmad. Hydrobiological characteristics of lake Wular with reference to zooplankton. University of Kashmir.

14. Patwari, Raghvendra Rao. Studies on some biochemical and physiological aspects of two cestodes, Avitellina centripunctata and Stilesia globipunctata. Osmania University.

15. Raina, Rajni. Plankton dynamics and hydrobiology of Bod Sar lake, Kashmir. University of Kashmir.

16. Rather, Abdul Qayum. Studies on the taxonomy, biology distribution and bio-ecological control of phytophagous mites of economic plants. University of Kashmir.

17. Samantaray, Kasturi. Hematological and serological studies on the anurans of Bhubaneswar. Utkal University.

18. Santosh Kumari. Studies on the taxonomy of Indian alcidodinae (curculionidae: Coleptera). Panjab University.

Medical Sciences

1. Anand Tarvinder Singh. Study of base line data on the systematic evaluation of electronystagmography in health and disease. Jiwaji University.

Agriculture

1. Bisen, Mahipal Singh. Effectiveness of selection methods of generation advance under four environments in Bengal gram, Cicer arientinum L. Jawaharlal Nehru Krishi Vishwa Vidyalaya.

2. Gwal, Hiralal B. Growth, yield and quality parameters of Sorghum sudanensis "Jawahar-69" in relation to plant population planting pattern with the methods of nitrogen application. Jawaharlal Nehru Krishi Vishwa Vidyalaya.

3. Jati, Prafulla Kumar. Critical study of farmer's training in Orissa. Orissa University of Agriculture and Technology.

4. Pal, Asha Ram. Studies on availability of and crop response to given alluvial soils. Jawaharlal Nehru Krishi Vishwa Vidyalaya.

5. Pal, Sudhansu Sekhar. Interaction between pesticides and microbial activities in submerged soils. University of Calcutta.

6. Rajinder Kaur. Studies on the physiology of drought resistance in cotton. Punjab Agricultural University.

7. Rama Mohan Rao, P. Toxicity, persistance and effectiveness of certain organic insecticides against the brown plant hopper, Nilaparvata lugens Stal infesting rice. Orissa University of Agriculture and Technology.

8. Sud, Vinod Kumar. Epidemiology and control of leaf spot of mash, Vigna mungo (L) Hepper caused by Cercospora canescens Ell. & Mart. Himachal Pradesh Krishi Vishva Vidyalaya.

9. Vara Prasad, 'Kancharla Venkatrama. Studies on Collecotrichum graminicola (Ces.) Wilson associated with sorghum, Sorghum vulgare Pers seeds. Jawaharlal Nehru Krishi Vishwa Vidyalaya.

ADDITIONS TO AIU LIBRARY

Amrik Singh and Sharma, G.D., ed. *University and college finances : Seminar papers.* Delhi, Association of Indian Universities, 1981, 246p.

Australian Vice-Chancellors' Committee, Canberra. *Students with handicaps.* Canberra, Author, 1979. 24p.

Avrich, Paul. *Modern school movement : Anarchism and education in the United States.* New Jersey, Princeton University Press. (c1980) x, 447p.

Bowen, James. *History of western education. V. 2. Cilvilization of Europe.* London, Methuen, 1981. XXIV, 631p.

Bridge, R. Gary and others. *Determinants of educational outcomes : The impact of families peers, teachers, and schools.* Cambridge, Ballinger, 1979. xxii, 357p.

Catholic Bishops' Conference of India, Delhi. *Judgements on minority educational rights,* Delhi, Author (c 1980) xvi, 444p.

Chawla, S.P. *Coordination between education and population policies : A case study of India.* Delhi. N.C.E.R.T. Population Education Project (c 1978). 151p.

Council of Ontario Universities, Toronto. *Universities and the future of Ontario : A foundation on which to build.* Toronto, Author, 1981. iv, 48p.

Esland, Geoff and Salaman, Graeme, ed. *Politics of work and occupations.* Milton Keynes, Open University Press (c1980) xiii, 408p.

Gronlund, Norman E. *Preparing criterion-referenced tests for classroom instruction.* New York, Macmillan (c 1973) 55p.

Hanfling, Oswald. *Cause and effect.* Milton Keynes, Open University Press (c 1980) 41p.

Husen, Torsten. *Talent, equality and meritocracy : Availability and utilization of talent.* The Hague, Martinus Nijhoff, 1974. xi 157p.

Indian Adult Education Association, Delhi. *Proposal on experimental project linking population education with adult education 1981-83.* Delhi, Author, 1982, 51p.

Indian. Review Committee on UGC Programmes. *Report.* Delhi, UGC, 1981, viii, 208.

———. University Grants Commission. *Teaching and research in English : A report.* Delhi, Author. 1981, 47p.

Intergovernmental Conference on Institutional, Administrative and Financial Aspects of Cultural Policies, Venice, 1970. *Final report.* Paris, Unesco, 1970. 76p.

Jencks, Christopher and others. *Inequality : A reassessment of the effect of family and schooling in America.* New York, Harper and Row (c 1972) 399p.

Lakshmibai National College of Physical Education, Gwalior. *Development of physical education and sports for the handicapped : A report and selected papers of All India Seminar.* Gwalior, Author, 1982. Discontd.

———, ———. *Physical fitness of university youth : A report and selected papers of U.G.C. Seminar.* Gwalior, Author, 1982, Discontd.

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Lawson, K.H. *Philosophical concepts and values in adult education.* Milton Keynes, Open University Press (c 1975) 120p.

Lewis, Darrell R. and Becker, William E., ed. *Academic rewards in higher education.* Cambridge, Ballinger, 1979. 41p.

Lockett Martin and Spear, Roger, ed. *Organizations as systems.* Milton Keynes, Open University Press (c 1980) 224.

Open University. *Communication and context.* Milton Keynes, Author (c 1979) 132p.

———. *Conjectures and their refutations.* Milton Keynes, Author (c 1981) 29p.

———. *Identity : Some social scientific inquiries.* Milton Keynes Author (c 1981) 124p.

———. *Inquiry : A wider perspective.* Milton Keynes, Author (c 1981) 95p.

———. *Scientific revolutions.* Milton Keynes, Author (c1981) 66p.

———. *Theories and facts.* Milton Keynes, Author (c 1981) 72p.

———. *War and the media.* Milton Keynes, Author (c 1981) 138p.

Taylor, Laurie. *Man's experience of the world.* Milton Keynes, Open University Press (c 1976) 39p.

Tripathi, B.D. *U.P. Education manual,* Allahabad, Hind Publishing House, 1982, Discontd.

Turner, Trevor and Ganga Persaud. *Non-formal education in Guyana.* Paris, Unesco (c1980) 48p.

Unesco. Division of Educational Policy and Planning. *Eleven experiences in innovations in decentralization of educational administration and management of local resources.* Paris, Unesco (c1980) 166p.

———. ———. *Trends and projections of enrolment by level of education and by age : World and regional aggregates 1960-2000.* Paris, Author, 1981. 74p.

———. Meeting of the International Panel, Paris, 1980. *Reflection on the future development of education : Working document and final report.* Paris, Unesco (c1981) 19p.

———. Regional Office for Education in Asia and Oceania. *Equality of educational Opportunities for girls and women : Report of a meeting of a consultative panel for Asia and Oceania 1979.* Bangkok, Author, 1980. Disc.

Vesey, Godfrey. *Personal identity.* Milton Keynes, Open University Press (c1980) 34p.

Weber, Kenneth J. *Yes, they can.* Milton Keynes, Open University Press (c1974) vii, 193p.

Weiler, Hans N., ed., *Educational planning and social change : Report on an IIEP Seminar.* Paris, Unesco, IIEP, 1980. 211p.

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Applications in the prescribed form are invited for the following posts on or before 30th November, 1982.

Professors : Physics (1), English Literature (1), Mathematics (1), Statistics (1).

Readers : *Physics (2), Statistics (1)*, Sanskrit (1), Veda or Vyakarana (CASS-Temp. post) (1), Taxation Laws (1), Philosophy (1).

Lecturers : Physics (1), Journalism (1), Organic Chemistry (1), Zoology (1), Geography (1), Library Science (1) Philosophy-Nyaya Pandit (1), Botany (1), Mathematics (1), Experimental Psychology (1).

All the above posts are reserved for candidates belonging to Scheduled Castes, Scheduled Tribes and Nomadic Tribes and Vimukta Jatis. Others need not apply.

***Lecturer** : Geography (Economic Geography) (1 Open post).

Scales of Pay

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader : Rs. 1200-50-1300-60-1900.

Lecturer : Rs. 700-40-1100-50-1600.

Plus allowances admissible under University rules.

Upper age limit

Professors 50 years, Readers 45 years and Lecturers 35 years.

Prescribed set of application forms together with requisite details available on request accompanied by (1) a self addressed envelope (23 cm × 10 cm) bearing postal stamps worth Rs. 2.30/- for the postage, and (2) a postal order of Rs. TEN drawn in the name of the Registrar, separately, for each post or personally on payment of Rs. TEN in cash in the University Office. The applicant asking for set of applications, must specify (i) the name and (ii) the serial number of the post he wants to apply.

(Note : 1. Candidate belonging to reserved category should produce a caste certificate to that effect from the Magistrate/Notary; specifying clearly the name of community to which he belongs.

2. One who is already employed must submit his applications through the proper channel.

3. *Some of the conditions may be relaxed in exceptionally capable candidates.*

*4. Only persons having specialization in Economic Geography should apply for the post of Lecturer in Economic Geography (Open post).

5. Persons who had submitted applications for the posts of Lecturers in (i) Geography (Reserved post) and (ii) Economic Geography (Open post) in response to advertisements dated **4-3-1982** and **14-7-1982** need not apply again.

S. P. Bhosale
REGISTRAR

JADAVPUR UNIVERSITY
CALCUTTA-700 032

Employment Notification No. A2 C 10/82

The University invites application in the prescribed form for the following post :

Lecturer in Architecture—1 (One) Post.

Qualifications : Essential : At least High Second Class Master's degree in Architecture/Town Planning of Indian Universities or equivalent with consistently good academic record.

Desirable : Teaching/Industrial/Research experience of two years.

Explanatory Note : Candidates should either have an average of 55% of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately. The essential qualifications may be relaxed provided that the Appointment Committee is of the view that a candidate is otherwise suitable for the post as per evidence cited by him.

Scale of Pay : Rs. 700-40-1100-50-1600/-.

Last date of receiving application is **29th November, 1982**.

Application forms are obtainable from the University Office during working hours on payment of **Rs. 2/-** or by post on payment of **Rs. 2/-** + **Re. 1/-** as postal charges. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their application through *proper channel*. Choice of *the Appointment* Committee will not necessarily be confined to applicants only. Canvassing in any form will disqualify a candidate. No travelling allowance will be admissible to the candidates.

REGISTRAR

Andhra University Publications, Waltair

S. No.	Name of the Author	Title of the Book	Price Rs.
1.	Prof. G. Subrahmanyam	University Finances : A case Study of Andhra University	44-00
2.	Dr. C.S. Venkaratnam	*Human Factor in Indian Ports*	44-00
3.	Prof. V. Balamohandas	Ancillary Industrial Development	44-00
4.	Dr. G. Sunadara Ramiah	Philosophical Essay	43-00
5.	Dr. C. Vyaghreswarudu	Principles & Practice of Orthopaedics : III Edn.	45-00
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11.	Sri N.V. Rao	India and Neighbourhood Diplomacy	3-00
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Deputy Director
Press and Publications

BANARAS HINDU UNIVERSITY

Advertisement No. 16/1982-83

Applications are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules. The retirement age of University Employees is 60 years. The appointment will be made on two years probation on all permanent posts. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft of Crossed Indian Postal Orders of **Rs 7.50** in favour of the Registrar, Banaras Hindu University towards the application fee. Application forms alongwith the leaflet of information will be supplied free of cost by the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005 on receipt of **Re. 0.70** paise stamped self-addressed envelope of 23 cm x 10 cm size. Candidates called for interview for these posts will be paid actual Railway fare by the Second Class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence both ways by the shortest route as per university rules. No other expenses will be paid.

Applications for each post be sent separately alongwith attested copies of certificates in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section), Banaras Hindu University, Varanasi-221005.

Incomplete application in any respect will not be entertained for consideration. Those who are in service should apply through proper channel. M.O. or cheque will not be accepted towards the application fee.

For the posts of Lecturer, other things being equal preference will be given to Scheduled Caste/Scheduled Tribes candidates who are considered fit.

Applicants may send their bio-data alongwith attested copies of all the certificates and details on plain paper alongwith the application fee of **Rs. 7.50** in Bank Draft/I.P.O. to avoid delay in case they do not get the prescribed forms in time.

NOTE : Number of vacancies are tentative and can vary according to needs.

LAST DATE FOR RECEIPT OF APPLICATION IS NOVEMBER 30, 1982

Grade

Reader :	Rs. 1200-50-1300-60-1900.
Lecturer :	Rs. 700-40-1100-50-1600.

FACULTIES OF SCIENCE AND HUMANITIES

1. **Reader in Chinese** (One) (Faculty of Arts)
2. **Reader in Mathematics** (One) (Mahila Mahavidyalaya)

Qualifications

Essential : Good academic record with a Doctorate Degree or equivalent published work.

Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials,

About 5 years experience of teaching and/or research provided atleast three of these years were as lecturer or in an equivalent position.

This condition may be relaxed in the case of candidate with outstanding research work.

Note : Other things being equal preference will be given to women candidates (applicable for the post of Reader in Mathematics, Mahila Mahavidyalaya only).

3. **Lecturer in Geography** (Four) (Faculty of Science)
4. **Lecturer in Library Science** (One) (Faculty of Arts)
5. **Lecturer in Urdu** (One) (Faculty of Arts)
6. **Lecturer in Hindi** (Five—including one post as temporary likely to be made permanent) (Faculty of Arts)
7. **Lecturer in Hindi** (Two—temporary likely to be made permanent)—(Evening College)
8. **Lecturer in History of Arts** (One) (Faculty of Arts)
9. **Lecturer in History** (One) (Faculty of Social Sciences)
10. **Lecturer in Jyotish** (Two) (Faculty of Oriental Learning & Theology)

Qualifications

Essential : (1) A Doctor's Degree or research work of an equally high standard ;

(2) Consistently good academic record with first or high second class (B in the seven point scale)) Master's Degree in the relevant subject (Acharya Degree in Jyotish for post No. 10 only) or an equivalent degree of a foreign University.

Note : The Department of History offers composite courses Indian and non-Indian History in B.A. Hons. and M.A. Courses (applicable for the post No. 9—Lecturer in History only).

Having regard to the need for developing inter-disciplinary programme, the degrees in qualification No. 1 and 2 above may be in the relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in qualification No. 2 above.

Provided further that if a candidate possessing a Doctor's or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

Candidates for being eligible for recruitment to the posts of Lecturers must have a first or high second class (B in the seven point scale) at the Master's level and for determining high second class the midpoint between the minimum percentage of marks fixed by a University for award of second division and first division may be taken and for determining consistently good academic record an average of 55% may be expected at the two examinations i.e. **Higher Secondary Intermediate/+2 or equivalent examination and graduate examination prior to the Master's examination** (irrespective of the marks obtained in any of the two examinations or 50% marks in each of the two examinations separately).

Note : Those who have already applied in response to our Advertisement No. 20/1981-82 for the post of Lecturer in Urdu need not apply again.

11. **Lecturer in Chinese** (Two) (Faculty of Arts)

Qualifications

Essential : (1) A Doctor's Degree or research work of an equally high standard ; and

(2) Consistently good academic record with first or high second class (B in the seven point scale) Master's degree in the relevant subject or an equivalent degree of a foreign university.

Having regard to the need for developing inter-disciplinary programme, the degrees in (1) and (2) above may be in the relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (2) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record may be appointed provided he has done one year post M.A. diploma course in the teaching of foreign languages concerned from a university on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

Candidates for being eligible for recruitment to the posts of Lecturers must have a first or high second class (B in the seven point scale) at the Master's level and for determining high second class the midpoint between the minimum percentage of marks fixed by a University for award of second division and first division may be taken and for determining consistently good academic record, an average of 55% may be expected at the two examinations i.e. **Higher Secondary Intermediate/+2 of equivalent examination and graduate examination prior to the Master's examination** (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

Note : Those who have already applied in response to our Advertisement No. 13/1982-83 need not apply again.

INSTITUTE OF MEDICAL SCIENCES

12. **Reder in Environmental Rural Child Health** (One) (Department of Paediatrics) (N.P.A. as per rules).

Qualifications: Essential : (1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.D. Paediatrics with D.P.H. or M.D. Preventive & Social Medicine with D.C.H. (3) Teaching and research experience as Lecturer for five years. (4) Five years experience in developing teaching and research methodologies for rural child care programme and environmental health **Desirable** : (1) Outstanding research work documented by publications in Environmental Health and Rural Child Health care.

Note : The post is purely for teaching and research in rural areas and person appointed will not held clinical beds in the University Hospital complex.

13. **Reader in Surgery** (Neuro-surgery) One) (N.P.A. as per rules)

Qualifications Essential : (1) M.B.B.S. or equivalent qualification recognised by the Medical Council of India. (2) M.Ch. in Neuro-Surgery after M.S. or an equivalent qualification recognised by Medical Council of India OR M.Ch. in Neuro-Surgery (5 years course after M.B.B.S.) recognised by the Medical Council of India. (3) Five years teaching experience in the subject as Lecturer in a recognised Medical College Institute.

Desirable : (1) Research and publications of high standard in standard journals.

FAMILY PLANNING ASSOCIATION OF INDIA—VARANASI COMMUNITY BASED DISTRIBUTION PROJECT RUNNING IN THE DEPARTMENT OF P.S.M. INSTITUTE OF MEDICAL SCIENCES

14. **Project Co-ordinator** (Temporary for the period upto 31-12-19 2 but likely to continue on extension basis) (One)

Grade : Rs. 1500-60-1800-100-2000-100-2500.

Qualifications : **Essential** : (1) Master's Degree in Statistics or Behavioural Sciences. (2) About 15 years experience of working in Community Health Programme (3) Experience of planning and co-ordination of large sized health projects. (4) Research experience as evidenced by publications of high standard **Desirable**: (1) Teaching and Administrative experience in a Medical College.

Note : Those who have already applied in response to our earlier Advertisement Nos. 4/1980-81, 18/1980-81 and 3/1981-82 need not apply again.

15. **Medical Co-ordinator** (Temporary for the period upto 31-12-1982 but likely to continue on extension basis) (One)

Grade : Rs. 1500-60-1800-100-2000-100-2500 plus N.P.A. as per rules.

Qualifications : **Essential** : (1) M.D. in Prel. and Social Medicine or equivalent qualification recognised by the Medical Council of India. (2) About 15 years experience of working in Community Health Programme. (3) Experience of Planning and Co-ordination of large size Medical Health Projects. (4) Research experience as evidenced by research publication **Desirable** : (1) Teaching and Administrative experience in Medical College.

Note : Those who have already applied in response to our earlier Advertisement No. 3/1981-82 need not apply again.

UNICEF-NFI-U.G.C. PROJECT ON LEARNING DISABILITIES AND MALNUTRITION IN RURAL SCHOOL CHILDRENS—DEPARTMENT OF PAEDIATRICS, INSTITUTE OF MEDICAL SCIENCES

. **Project Co-ordinator** (Temporary for three years) (One)

Grade : Rs. 100-50-1600

Qualifications Essential : (1) M.B.B.S or equivalent qualification by the Medical Council of India. (2) M.D. Paediatrics OR M.D. (Preventive & Social Medicine) with D.C.H. or five years experience in clinical Paediatrics.

Disirable : (1) Experience in growth and development of School children. (2) Teaching and research experience for 5 years as Lecturer.

Note : The post is purely for research assignment in rural areas.

COMPUTER CENTRE

17. **Maintenance Engineer** (Junior) (Two)

Grade : Rs. 700-1300.

Qualifications

Essential : A Degree in Computer Technology, Computer Science with specialization in Hardware OR Degree in Computer Electronics Engineering/Electrical Engg. M.Sc. in Physics with Electronics OR Instrumentation in advanced level with extensive experience in repair and maintenance of Electronics instruments.

Note : Educational qualifications relaxable in case of applicants with long experience of serving in an established Computer Centre.

18. **Programmer** (One)

Grade : Rs. 700-1300.

Qualifications

Essential : Master's Bachelor's level Degree in *Software Engineering* or Master's level Degree in application area.

Note : Educational qualifications relaxable in case of applicants with long experience of serving in an established Computer Centre.

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR-388 120
(GUJARAT)

Notification No. EST 4 (1982-83) **Date : 22-10 1982**

Applications are invited in the prescribed forms available from the University on payment of **Re. 1/-** in Cash or by Indian Postal Order for the following posts so as to reach the undersigned on or before **30-11-1982** :—

Sr. No.	Name of the Post	Scale of Pay
1.	Professor each in :	Rs. 1500-60-1800-100-2000-125/2-2500.
	(i) Physics (Solid State Electronics, Quantum Electronics and Digital Electronics)	
	(ii) Psychology; and	
	(iii) Education	
2.	Reader each in :	Rs. 1200-50-1300-60-1600-Assessment-60-1900.
	(i) Bio-Science (Botany)	
	(ii) Home Science (Foods and Nutrition)	
	(iii) Sociology; and	
	(iv) History	
3.	Lecturer each in :	Rs. 700-40-1100-50-1300-Assessment-50-1600.
	(i) Chemistry (Chemical Technology or Industrial or Applied Aspect of Chemistry) (Temp.)	
	(ii) Mathematics; and	
	(iii) Psychology	
4.	Trained Instructor in Drama Performing Arts	Rs. 700-40-1100-50-1300 Assessment-50-1600.

The details of the prescribed qualifications etc. will be supplied alongwith the application forms.

All the posts except at Sr. No. 3 (i) carry the benefits of Dearness Allowance, Provident Fund and Gratuity as per rules of the University. Post at Sr. No. 3 (i) carries the benefit of Dearness Allowance only.

Perference will be given to the qualified candidates belonging to Scheduled Castes Scheduled Tribes. Socially and Educationally and/or Economically backward class.

Candidates who have applied for the post of Lecturer in Chemistry in response to our earlier advertisement need not apply again.

Vallabh Vidyanagar

R.C. Thakkar
REGISTRAR

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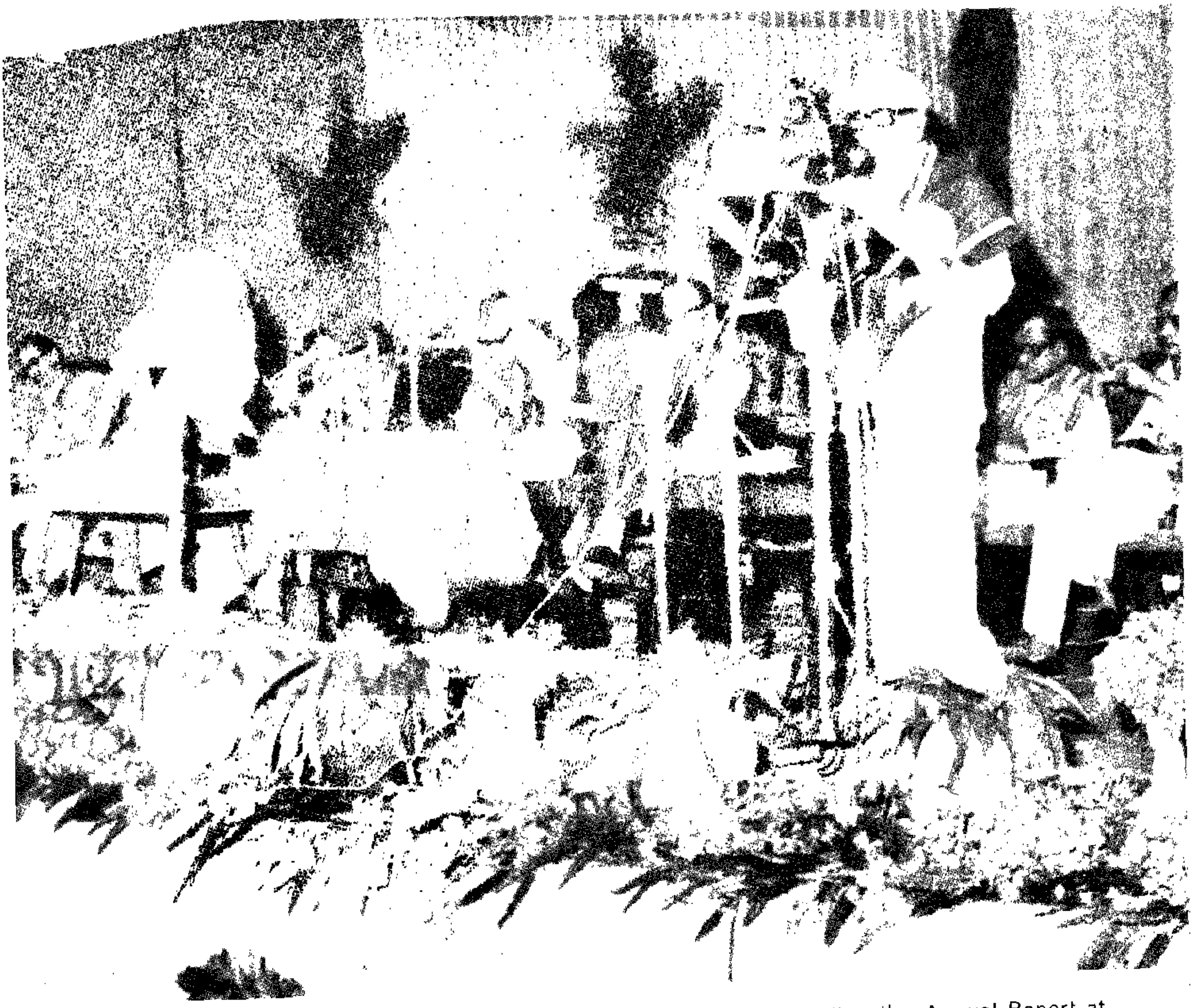
University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH DECEMBER 1, 1982



Shri A. Sambasiva Rao, Vice-Chancellor of Andhra University presenting the Annual Report at the 55th Convocation of the University. Honorary degrees were also awarded on this occasion.

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Deen Dayal Upadhya Marg, New Delhi-110002

UNIVERSITY NEWS

VOL. XX DECEMBER 1
No. 23 1982

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Price Re. 1.25

IN THIS ISSUE

Economic Aspect of Woman Education 719
Way to Judge Students Fairly 724

Campus News

International Conference on Leaf Protein Research at Marathwada Varsity 725
Conference of Indian Council of Chemists at Kashmir 725
Seminar on painting in Tamilnadu 726
All-India test for admissions to PG Engg. courses 726
UGC institutes four awards 727
Essay competition for good citizenship 727

News from Abroad

ACU Travelling Fellowship 728
New ceramic produced in Australia 728

Agriculture

All-India co-ordinated project on national demonstration at Gauhati 728
Indo-Netherlands project on hydrological studies 729
Theses of the Month 730
Current Documentation in Education 733
Classified Advertisements 734

Opinions expressed in the articles and reviews are individuals and do not necessarily reflect the policies of the Association

Editor : M S Ramamurthy

Interview of the Month

Dr. A.K. Dhan

The Editor of University News met Dr. A.K. Dhan, Vice-Chancellor of the Ranchi University, Ranchi (Bihar) on 20th November, 1982. Dr. Dhan, MA, PhD (Edinburgh), is one of the more senior Vice-Chancellors in the country having now been continuously a Vice-Chancellor for more than 7 years and in three different universities.

In answering the questions, Dr. Dhan brings into focus some of the more pressing issues relating to Higher Education in India.

Q. 1 As a very senior Vice-Chancellor, University News would like to have your views in matters causing concern to Universities. Can you kindly identify for the benefit of readers of University News what these problems are and in the order of priority you would like to list them ?

Ans. One of the most important problems faced by the universities, and indeed by the majority of public institutions, is the growing population pressure. There has been, even if you take only the preceding decade, a tremendous increase in the number of colleges and other institutions of higher learning. As all who are concerned with university education are aware, no college or university is today able to even loosely adhere to the stipulated strength in admissions. The immediate effect of having such a large student population in any university or college is the lowering of academic standards and an all round slackness in both curricular and extra-curricular activities. Because of the paucity of the resources (faced by almost all universities) it is practically impossible to provide for an improvement in matters of staff and others requisites like classrooms, laboratory equipment, textbooks or even playing facilities, proportionate to the increase in numbers. The first priority, therefore, in my opinion is to devise a procedure through which higher education in colleges and universities is restricted, providing opportunities for the same not so much to the people who can afford it but to those who deserve it. It is heartening to learn that the awareness of this basic problem which is threatening our higher education today is growing fast, and at different levels efforts are being made to overcome it.

However, any action contemplated towards this end must also ensure that those sections of society who have for historical reasons been denied access to higher education are enabled now to proceed further with their studies. While equality of opportunity should be ensured, such equality should be amongst those who deserve, by aptitude and previous training, higher education subject to fulfilment of certain socially desirable objectives as mentioned above.

The second disturbing feature present in the sphere of higher education is related to the first mentioned above, viz., the intrusion of such population for the bulk of which an aptitude to learn and to improve, and as a result to extend the frontiers of knowledge, is anathema. The presence of a large body of mediocre student population, in these days of keen contest in all walks of life, is bound to lead to a great deal of frustration. The presence of this sizeable frustrated element in universities provides a favourable hunting ground for both individual politicians and political parties.

Many of the problems raised by student bodies are not capable of easy solution primarily because a *solution is not really what is desired*: what is in fact desired is a continued state of unrest which would

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eventually throw up a few leaders and henchmen. The tragedy is that students who are primarily and solely interested in studies do not have much say in the conditioning of any campus situation.

This of course does not mean that some of the demands made by the students or difficulties faced by them are not genuine. Their genuineness. however, is to a very great extent the result of over-crowded university and college corridors and the large number of students who continue to be there without motivation, whose progress therefore is not vertical but circular.

A good deal of the difficulties faced by the universities is also the result of a lack of motivation on the part of the teaching community. I have always believed that teaching is a profession where the presence of a missionary zeal is not something to be ashamed of. Indeed, in the teaching profession two ingredients should be inevitably present, viz., academic excellence and the motivation to improve.

The reason for the presence of a mediocre element in the teaching profession is due to a number of factors, viz., the dearth of jobs (which is a national phenomena again related to the growing number of university educated individuals) the comparatively less adulatory status of college and university teachers vis-a-vis higher administrative posts and jobs in the commercial sector etc. Indeed, with the mushroom growth of educational institutions any country would be hard put to it to provide academically excellent teaching staff in all cases.

Q. 2 There appears to be a widening gulf between the State Governments and the universities in their respective perceptions of role and governance of higher education. Can you for the benefit of readers of University News identify the reasons for the same?

Ans. One important factor which could be enumerated is the lack of understanding of the manner in which a university, which is an autonomous body, functions. This lack of understanding between agencies like the education departments of governments, which control the purse strings of the university, results in situations of tension which are totally un-necessary in a university which is autonomous. To my way of thinking autonomy is not a luxury but a necessity, a necessity which takes up a particular colouring from the fact that the university deals with a volatile, energetic and inquisitive group of students and also with the intellectuals of the country. In such a situation the university must have the authority and the ability to anticipate and provide for the special needs of the university community. Such needs are certainly not always understood outside the university.

One heartening feature which is recently emerging is the realisation that, particularly in a developing country, a good deal of what is learnt in the university must be capable of being successfully applied to actions taken for the development of the country. Thus the educated youth who pass out of the university should do so with an assurance that what they have learnt is not to be confined within the covers of a book but that they will have further opportunities of inter-action between what they have learnt at the time of passing out and what they will learn further through practical experience when they enter into the working situation.

One other fact which has not been seriously considered is the repetitiveness which is a bane of higher education in India today. There is indeed at a higher level in university, too much of duplication which no developing country can afford. Thus universities should complement each other in the selection of topics and subjects being taught and particularly in the fields of research. There are cases where 4 or 5 contiguous universities are all specialising in one particular field, say, like X-Ray. Thus, not only at a national level, but also at the state level, university authorities should get together and prepare a syllabus comprising a balanced collection of topics and subjects.

Finally, since the feudal concept of education as something which is imparted onesidedly in a classroom is finally exploded, a growing emphasis must be placed on seminars and other curricular activities as also on extra-curricular activities. At least an attempt must be made to ensure that beyond the classrooms all youthful energy is not frittered away in slogan shouting but is used much more constructively in the sports field or in cultural auditoriums.

Q.No. 3. What do you think needs to be done to bridge the gap between the University's and Government's perceptions in the matter?

Ans. It is suggested that university syndicates and senates should have government representatives at a higher levels also. This would make them aware of many of the problems faced by the universities. This is also not too indirectly related to the security of the Vice-Chancellor's service. Attempts should be made to select and appoint the right person as the Vice-Chancellor, and having done so to ensure that he is allowed to work in peace for a period necessary for showing tangible results.

Q. No. 4. In your perception what is the role for AIU in field of Higher Education?

Ans. AIU being a national voluntary body comprising a vast majority of Universities in India can certainly have a lasting say in the impovement of educational standards and campus situation. It could perhaps set norms in most aspects of university education, like equivalence, standards of affiliation, even code of conduct for teachers, norms for teacher-student ratio, syllabus content, identifying research areas needing priority attention, student amenities and in short anything that concerns a University. The strength of AIU is in its voluntary nature. And so long as AIU members go along in unison AIU can pave the path for greater successes, enhancing the prestige of Indian Universities, their academic standards and their administrative efficiency. Indeed I can even visualise an international role for AIU and more importantly a leader's role in the Asian region.

—Editor

Economic Aspect of Woman Education

R.P.S. Rana*

> "Woman is the Companion of man gifted with equal mental capacities. She has the right to participate in the minute details of the activities of man, and she has the same right of freedom and liberty as he. By sheer force of a vicious custom, even the most ignorant and worthless men have been enjoying a superiority over women which they do not deserve and ought not to have".
>
> —Mahatma Gandhi

At the beginning of the nineteenth century, there was hardly any provision for the formal education of girls. Even at the opening of the present century, not much progress had been made. Thanks for Church Mission Society (CMS in 1816) and London Mission Society (LMS) for starting Baker Memorial School in 1822 which became in later years one of the best English High School in Travancore and thousands of Syrian girls could be educated. It stands as a memorial to the effort of the early missionaries to break-down the determined opposition of the people of India to the education of woman. The character of missionary educational activity varied from region to region partly because of local conditions and also because the two major missionary societies, the LMS and the CMS worked in different regions, they had somewhat different policies, but did not really compete against each other.

The social effects were evident as well. The girls learned profitable skills and helped defray the mission costs. More important perhaps was the influence of mission education on the caste system. In fact most of the students were selected from among the lower castes and in order to keep poor but promising boys at school, thirty free boarding places were provided. They learned the trades which had previously been the prerogative of certain other castes and thus helped to break down the rigid system which was based upon birth and occupation. The mission had served as a place of refuge for the oppressed outcasts and dregs of society. In meeting the needs of these people the education of persons (man & woman) who could have benefited more from it was neglected. Perhaps the concentration of efforts by the CMS and LMS on the Indian women's education paid more handsome dividends for India.

The women's emancipation movement in the western world started in the nineteenth century with an attack against the exclusion of women from higher education. After considerable struggle and determined efforts by leaders of the movement the University of London opened its gates to women in 1878 where as Calcutta University permitted women candidates to appear for B.A. Examinations as early as 1877. Bombay University followed in 1883. The continued ambivalent efforts of our society educational authorities and planners have influenced women's education at all levels and are responsible for an element of reaction, or hostility to women's increasing entry in different fields of higher education.

A development which is interesting and pregnant with many possibilities is that women are gradually edging out men from arts, science and education courses over the past 25 years.

Table I shows women enrolment as a proportion of total enrolment in our universities and colleges during the period 1969-70 to 1976-77. It will be seen that women enrolment as a percentage of total enrolment has increased progressively from 22.0% in 1969-70 to 23.3% in 1973-74 and 25.8% in 1976-77.

Table I

Enrolment of women in universities and colleges

Year	(1969-70 to 1976-77) Total enrolment	Women enrolled	%age of women
1969-70	17,92,700	3,94,594	22.0
1970-71	19,53,640	4,30,822	22.1
1971-72	20,65,641	4,68,696	22.7
1973-74	22,34,385	5,20,825	23.3
1975-76	24,26,109	5,85,162	24.5
1976-77	24,31,563	6,27,346	25.8

Women students are securing a disproportionately large share of scholarships and fellowships available for art subjects. In recent years 90 to 95% of the scholarships in Sanskrit were awarded by the University Grants Commission to women students. Out of a total number of 68 Research Associateships awarded during 1978-79, 25 were women. Likewise out of 29 persons selected under National lectures schemes, three were women. Among 17 selections made for career Awards during 1978-79, two were women.

All over the state of literacy among women is particularly distressing. In 1901, the percentage of literacy amongst women was only 0.8. The number of girls enrolled for every 100 boys was only 12 at the Primary stage and 4 at the secondary. The total enrolment in higher education was only 264 (which included 76 girls reading in medical colleges and 11 in collegas of education). It is universally acknowledged that unlesswomen become educated, there is little hope for social transformation. A little progress was made after 1950, both in raising their social status and in developing their education and the

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progress in the last fifteen years has been almost phenomenal. The rate of expansion of education of girls is much faster than that among the boys so that the gap between them is gradually and steadily narrowing, which is obvious from the **Table II** giving literacy rate *for females and males from 1901 to 1981. At the lower* primary stage, the number of girls enrolled per 100 boys has increased from 12 in 1901 to 39 in 1950 and to 55 in 1965, and 61.52 in 1975-76. At the secondary stage, the corresponding figures are 4 in 1901, 15 in 1950 and 26 in 1965 and 39 in 1975-76. In higher education their enrolment has increased from a mere 264 in 1901 to 40,000 in 1950 and to 2.40,000 in 1965 and to 627, 346 in 1977. The number of colleges meant exclusively for women has gone up by nearly 25% over the period 1971-72 to 1976-77 In absolute terms the number increased from 430 in 1971-72 to 543 in 1976-77. In spite of the continued *endeavour of the UGC and Government to* encourage woman education, the rate of female literacy rose from 13 percent in 1961 to 18.7 percent in 1971 and to 24.8 percent in 1981 which is, distressing when compared with other countries.

Table II
Literacy in India (1901 to 1981)

Year	Males	Females
1901	9.83	0.80
1911	10.56	1.05
1921	*12.21*	*1.81*
1931	15.59	2.93
1941	24.90	7.30
1951	24.95	7.93
1961	34.44	12.95
1971	39.45	18.69
1981	46.74	24.88

It is argued that a large proportion of expenditure incurred on the higher education of girls is wasted, because many of them get married and do not use the knowledge and the skills they acqruire for social purposes. This argument is also used to make out a case for curtailing the opportunities now offered to woman for higher education. But this raises a number of important question.

If it is argued that the rate of return to women's education is very much lower than for men, it would appear to support the view of many parents that the higher education of their daughters is a waste of money and the similar belief among employers, that investment in on the job training yields low returns in the case of women workers.

As far as goals of education are concerned there seems to be some sort of divergence between the view points of parents and daughters. Many parents still feel, that the education they provide for their daughters will enable them to get a better husband or to some appreciable extent solve their marriage problem. One of the studies indicates that highly educated and economically well-off parents feel that education has to be given for personality development while parents from lower income and backward classes feel that education provides economic security and helps to achieve a higher status. In a survey, the committee on the status of women found that parents favoured education of girls in the following order. "Education is good for all *round development", "it is helpful in case of misfor*tune and emergency", "it brings prestige to girl and family", and "it enables a women to earn a living". The educationists, however, look upon education from the point of view of academic advancement and its job potential.

If the education of men is an investment, whereas female education is largely consumption, this suggests either that there should be a re-allocation of resources, and greater discrimination against women in higher education, or it reduces the relevance of rate of return analysis for public policy in education. But this emphasis on absolute differentiation of roles in society of the two sexes is a contradiction of trends in modern society, as well as the goals set before this nation by the constitution. If the purpose of educating woman is to be the same as educating men and as implied in the equality clause in the constitution, then it is imperative to provide not only equality of opportunities, but also training in the exercise of equality of rights and responsibilities. The Indian polity expects a woman to function in many capacities, as a citizen participating in the national decision making process, as a worker and thinker in the process of national development as well as in her biological rôle of a mother. In the *progressive society of tomorrow,* life should be a joint venture for men and women. Men should share the responsibility of parent-hood and home-making with women; and women in their turn should share the social and economic responsibilities

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davp 590(99)/82

of men, because substitution effect is visible in a society based on automatic mechanism.

Since a large proportion of women expect education to train them for all round development, their concentration in the Arts and Humanities faculties is understandable, but is this goal achieved by the education system? There are no empirical studies which show clearly that the goals of attaining a higher status, personality development or academic excellence are achieved by education. These are the non-tangible aspects of education which are difficult to measure. One could however infer, that since women's enrolment is increasing and the number of marriages has not declined, that the expected dividends from education are not being received. However as the Carnegie Commission suggested, "the social benefits of higher education for women, perhaps even more than that for men, include elements that cannot be quantified by conventional methods of measuring the social return to investment in education."

A few studies of the rate of return to investment in education include estimates of the return to women, but there has been very little analysis of the investment aspects of female education, despite the current wave of interest in the employment of women, sex-based wage and job discrimination, and equality of opportunity for women, stimulated by the women's liberation movement. Most of the literature on cost-benefit analysis of education suggests that the monetary returns to female education are low, because of the lower earnings, lower labour force participation, and shorter working hours of women, compared with men; the education of women must be justified either on non-economic grounds of social justice or by appeals to the indirect benefits of education, which are not measured in conventional rate of return studies. Thus it is important to find out whether the social and private returns to women's education really are significantly lower for women than for men and if so, what are the main causes of the lower rate of return and what are the implications for educational and social policy.

A recent attempt to calculate the contribution of of education to the growth of national income in the UK between 1951 and 1961, Moreh calculated the average returns to higher education in 1961, which were £ 1,490 for men and for women, £ 697. However the difference in his measure of total returns is very much greater because of the much smaller number of educated women in the labour force; he estimates that in 1961 the total returns to men's education were £ 7,142 million, while to female education, returns were only £ 1,817 million. However, the fact that average female earnings are about half the male average does not automatically mean that the rate of return to women's education will be lower than the rate for men, for the rate of return depends upon the earnings differential between educated and less educated women, rather than average earnings, and it measures costs as well as benefits of education; these include foregone earnings, which are also lower for women than for men. Morris and Ziderman (Study based on British data 1968) study indicates that the average earnings of women graduates were £ 1,316 compared with £ 2,547 for male graduates. The female average was almost exactly half the male average. But the average earnings of all female employees were £ 512 or only 45% of the male average of £ 1,120. This means that the earnings differential enjoyed by graduate women was 56 per cent of the male average. This is because women with higher education are more likely to work after marriage, or to return to work after looking after their children, than women with less education. In 1969 in USA, it had been observed that the higher a woman's educational level, the closer her income approaches to that of similarly educated men. Nevertheless, the difference in rates of return will depend upon differences in labour force participation by educational level, the extent of part time work among women, and the extent of labour market discrimination againgt women.

Estimates are available for women is only a very few countries, because of the shortage of suitable earnings data for woman, but **Table III** summarises the evidence on the social rate of return to investment in education for men and women in nine countries, the only ones for which separate estimates of rates of return by sex are available; out of fourteen cases, the rate of return is higher for men in nine cases and higher for women in five cases. Estimates are also available of the rate of return to primary education in the US and three developing countries and in these cases men appear to enjoy a greater advantage compared to women. The average rate of return to primary education is six percentage points lower for women than for men. But the difference in the social returns to secondary and higher education is less than the difference in male and female average earnings. If private, rather than social rates of return are used as the basis of comparison, the same conclusion emerges. Estimates of the private rate of return for women are available in very few countries, but in the US the private rate of return to higher education is about two percentage points lower for women than for men, whereas in Germany it is 1.4 percentage points higher for women.

Table III

Rates of return on investment in education by sex

Educational level Country	Secondary Males	 Females	Higher Males	 Females
United States	14.0	13.0	9.7	4.2
Puerto Rico	21.7	20.9	16.5	6.3
Colombia	26.5	13.5	2.9	3.6
Germany	—	—	4.6	6.0
Greece	3.0	5.0	—	—
Kenya	23.6	19.5	—	—
Malaysia	12.3	11.4	10.7	9.8
New Zealand	19.4	25.3	13.4	13,5
England and Wales	—	—	8.9	6.4

Thus the question whether investment in education is more profitable for men is more complicated than the difference in average earnings of men and woment might suggest. The rate of return studies which are quoted in Table III are not all directly comparable, because they differ in their treatment of non-working women, and in various assumptions about the measurement of benefits, so that the profitability of investment in education for women can best be analysed by means of separate assessments of the effects of education on earnings and on labour force participation, and the effects of labour market discrimination and of indirect, non monetary benefits, on returns to women's education in India rather than by means of existing rate of return estimates for different countries.

Active participation and rate of return

The number of women workers have a smaller proportion as compared to male workers in the Indian economy as is the case with most of the developing economies.

From the recent statistics it is obvious that the number of women employees in the organised sector increased from 26.15 lakhs in March 1979 to 27.019 lakhs in March 1980, thereby recording a positive growth of 3.3 percent as against an increase of 2.2 percent witnessed during the preceding year. In the public sector their number went up from 13.686 lakhs in March, 1979 to 14.475 lakhs in March, 1980 thus recording an increase of 5.8 percent and in the private sector the number of women employees rose from 12.463 lakhs in March, 1979 to 12.545 lakhs in March 1980 thereby recording a rise of 0.7 percent. Compared with the corresponding period of last year, women employment had registered a gain of 7.3 per cent and 0.2 percent in respect of the public and private sectors respectively. Analysing the public and private sectors separately, it would be noticed from the available figures that in so far as the public sector is concerned, increased employment of women is visible. But there is no discrimination of wage for men or women for the same job. For example during 1975-76, there were 30,69,359 teachers in all recognised institutions —23,05,376 men and 7,63,983 women. Of the total of 7,63,983 women teacher employees, 1526 (9.95%), 68 (4.67%), 181 (8.30%), 56 (6.87%), 26,456 (20.66%), 10,644 (13.48%), 341 (3.79%), 1,99,994 (26.36%), 2,23,885 (28.78%), 2,83,242 (22.70%), 9305 (93.51%), 4,075 (26.74%), 1,033 (37.45%) and 3,177 (14.74%) were employed in Universities teaching, departments, institutions deemed to be universities institutions of national importance, Research institutions, colleges for general education, colleges for professional education, colleges for other education, Higher Secondary Schools, Middle and Senior Basic schools, middle and Junior Basic Schools, Pre-Primary/Pre-Basic Schools, Schools for vocational and Professional Education, Schools for special education and schools for other education respectively.

Figures in parenthesis indicates percentage of women teachers to total employment within the same category such as in the case of universities teaching departments, there were 1,387 man (90.05%) and 1,526 women (9.95%) of total employment in the teaching departments of the universities. Here study reveals that there is no wage difference between men and women in these institutions.

Ordinarily, the question of utilisation of women with education is dealt with at the level of creating "Career opportunities". The bulk of the women teaching staff of colleges is to be found in the junior lecturer grade. This, however, does not permit us to draw the conclusion that there is any wage discrimination against women, as it is obvious from the foregoing analysis, showing proportion and number of women teachers in different institutions during 1975-76.

This emphasises that it is difficult to isolate and measure the effects of discrimination. A large part of the income difference between educated employed men and educated employed women having same qualifications can be explained by differences in hours of work, seniority on the job, training and all occupational distribution, turnover and absenteeism, etc. It is obvious that the representation of women teachers in all the teaching faculties has been particularly significant. The total number of teachers in the recognised institutions increased from 25,58,161 (19,60,546 men and 5,97,615 women) in 1970-71 to 30,69,359 (23,05,376 men and 7,63,983 women) in 1975-76, showing an increase of 19.98 percent, or males teachers increase by 17.58 percent and women teachers increased by 27.84 percent in 1975-76 over 1970-71. When compared to the expansion their proportion to total number of teachers, it have to be admitted their representation on the teaching faculties in universities, colleges and schools leaves much to be desired. It should be noted that the main reason of increasing participation of women in teaching and in other professions, however may be attributed that unlike the western universities, colleges, schools and other departments, Indian universities, colleges, schools and other departments have never practised any discrimination in the scales of pay between men and women teachers and workers. While it is true that higher education has remained practically the monopoly of women in the middle and urban middle class. Economic compulsions have made heavy inroads into their lives, driving many of them into the labour market to keep away their families from starvation. This is one of the implications that women being untrained have to occupy inferior positions. The railway statistics indicate that in 1973-74, women in the officers grade I amounted to 1.8 percent. Those occupying jobs such as those of clerks, stenos, teachers, nurses etc. amounted to 55.5 percent while 42.6 percent of the women were in the class IV category. In the Sachivalaya of Maharashtra Government, only 15 (4.2 percent) of the women were in the class I category, 25 (2.5 percent in the class II category, 1150 (35.4 percent) in the class III and 7 (.7 percent) in the class IV category were employed. In all the categories there was no wage discrimination between employed women and men in Railway Department and in Maharashtra Sachivalaya.

The role of women outside the home has become an important feature of the social and economic life of the country and in the years to come, this will assume large proportions affecting a majority of women. In the democratic and socialistic pattern of society which we visualize, education should be related to individual capacities, aptitudes and interests which are not strictly related to sex. There would, therefore, be no need in such a society to differentiate curricula on the basis of sex. It is true that women have a pontential, a right to aspire to any position as men have. More than a century ago, lawyer Belva Lockwood had to shepherd special legislation through congress to become the first women allowed to practice law before the U.S. Supreme Court. Sandra Day O'Connor is sworn in as the first women justice of the Supreme Court, the highest judicial body in the United States it is the dramatic changes of the last 109 years. Ten years ago, fewer than 3 percent of the attorneys in the United States were women and female law-students were outnumbered 23 to 1 by males. Now, nearly 35 percent of law students are women and if current trends continue, they will constitute half of all law students by the end of this decade. By the year 2000, woman are expected to comprise nearly 40 percent of the practicing lawyers in the country. Today, some 20 percent of the lawyers in major wall street firms are women, compared with 1 percent in 1970. Fifteen percent of the lawyers it the 50 largest American law firms are female.

The national association of women judges, and numerous national and state coalitions and caucuses have worked long and hard to advance the status of women in law. In fact, the main objective of the Indian Federation of Women Lawyers formed in 1962 is "to enhance and promote the welfare of women and children." Today in Indian High Courts there are eight women judges, one each in Andhra, Bombay, Rajasthan and Delhi and four in Calcutta.

It is obvious from the analysis that educated women tend to encounter less wage discrimination than women with less education, because higher education provides access to many of the jobs where equal pay is enforced. The actual effect of pay discrimination may be to increase the rate of return to education, by increasing the differentials between educated and less educated women. In India we do not find any difference between the average earnings of full time male and female employees with same qualification, for doing the same job in the same firm or department. We conclude that a large part of the earnings difference if any between men and women is due not to market discrimination, but to difference in employee preferences particularly on the part of married women. One possible reason for this is that married women particularly women re-entering the labour force after a period of child-care, are willing to work for low wages in order to enjoy the interest and stimulation of market work. From the analysis this is not to say that education is mainly consumption, rather than investment for women. For purpose of analysing investment aspects of education, job satisfaction and monetary earnings are not conceptually different even if one is more difficult to measure.

Part of the differences between the rate of return to education if any for men and for women is certainly due to the participation of women in low income occupations. Women graduates, for example, are heavily concentrated in occupations, such as teaching or social work where the returns to education are comparatively low and there are few women in professions, such as industrial management or accountancy where return are high. If rates of return are calculated on an occupational basis, there is likely to be much less difference between male and female rates of return than is normally observed. We also believe that an educated women does become a better citizen and that the benefits of her education goes to enrich the life of her family. If her talents and skills are not fully utilized today in work outside the home, the responsibility is of the society which does not provide opportunities to such women to be of greater social use. The role of women as wives, mothers and home makers has changed. Women must now also seek employment to improve their economic conditions and to seek intellectual satisfaction. It has been found that college educated women tend to spend relatively more time on child care than women with lower levels of education, but about the same amount of time on such activities as meal preparation. Thus, the educated women is expected to display efficiency in all her roles. It is imperative that the government and university resolve their ambivalence and provide education to women which will equip them to play their multiple roles via substitution effect.

(To be concluded)

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Way to Judge Students Fairly

K. Gunasekaran*

The score obtained by a candidate in an examination depends on many factors. One of them is the standard of marking maintained by the examiner concerned. Here, the standard refers to the extent to which the 100-point marking scale (the marks ranging from Zero to 100) is used by the examiners. Some examiners tend to be lenient in valuing and some strict. For example, the marks awarded may range from 40 to 100 in the former case and 10 to 45 in the latter case. As the examiners' expectations from the answers differ, the scores awarded by them also differ, even though they follow the same valuation scheme.

In an interesting study conducted by Harper and Misra (1970), it was found that following the same valuation scheme, two experienced examiners awarded marks differently to the same scripts provided to them. As the same scripts were sent to the examiners (and they were asked to value them following the same valuation scheme sent), the variation in the marks awarded to the scripts can be easily attributed to the different standards maintained by them. But in an examination, the variation in the standard of marking by the examiners cannot be identified, as the quality of the scripts sent to them vary from one examiner to the another. Hence, if the problem of variation in the standard of marking by the examiners is to be tackled, at the first instance, it is necessary to ensure that the quality of the scripts sent to one examiner is almost the same as that sent to another examiner. Only then, the differing standards maintained by the examiners can be identified.

Almost the same quality of answer scripts can be sent to every examiner through a random award of the register numbers to the candidates and then sending the scripts in serial order to the examiners. For instance, if 30 colleges offer B.A. History, and the total number of candidates involved are 900, then the register numbers of these candidates ranging from 1 to 900 may be allotted at random to the candidates spreading over all the 30 colleges. This way the register numbers may not be in serial order in a college. Instead, the register numbers are spread over all the colleges. More the spread, the greater will be the effect.

Even though random number tables may be used for allotting the register numbers there are chances that some numbers may get repeated which may create problems. To solve this, Taylor (1963) had developed a random number grid which can be constructed for any number of candidates and used by a clerk in the examination section of a University/State Board. It is very simple to construct and at the same time scatters the register numbers widely.

After the examination is over, the scripts may be collected from various centres and arranged serially at a central place and sent to the examiners in serial order. For example, the scripts with register numbers 1 to 200, say, may be sent to the first examiner, 201 to 400 to the second and so on. The above procedure ensures that the overall quality of the set of scripts sent to one examiner and the other is almost identical. But, there is bound to be difference in the quality of scripts as far as an examiner is concerned. Hence, this will result in an examiner awarding different marks to the scripts valued by him.

As the overall quality of the set of scripts sent to different examiners is almost the same, the variation that may be found between the set of marks awarded by any two examiners can be attributed only to the differing standards maintained by the examiners concerned. The different standards in marking by the examiners can then be standardised to a common measure through scaling of marks. The common measure may be the pooled mean and the standard deviation of marks awarded by the examiners.

As per this method, the mean and the standard deviation marks in respect of individual examiners are calculated at first. Secondly, taking into account the marks of all the examiners, the pooled mean and the standard deviation marks are calculated. Then, the marks of each examiner is scaled taking into consideration his mean and standard deviation marks and the pooled mean and standard deviation marks. The common measure adopted to standardise the individual examiner's marks can be any measure.

The Gauhati University is using pooled median marks to be the common standard to which each examiner's marks are scaled. It may be remembered here that the scaling of the examiner's marks does not alter the ranking of the students (as evidenced through the marks awarded) done by an examiner. That is, the order of merit of the students as fixed by an examiner is not disturbed due to scaling. Instead, the marks awarded by him to the scripts are raised or brought down according to his mean and standard deviation marks.

If a University is processing the examination results through a computer, the calculations involved in the scaling of marks can be done with ease.

Thus, randomisation of the register numbers and scaling of marks acts as a check to safeguard the students from the strict examiners and at the same time does not allow the students to be unduly benefited due to lenient valuation. While this method is widely used in the Western countries, only a few Universities are adopting it in India. It is high time that more universities used this method to safeguard the students interests. □

[*Courtesy* : The Hindu]

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Campus News

International Conference on Leaf Protein Research at Marathwada Varsity

(From Our Correspondent)

The International Conference on Leaf Protein Research, organised by the Society for Green Vegetation Research, was held on 5-8 October, 1982 at the Botany Department, Marathwada University, Aurangabad (India). There were about 200 registered participants, and 71 papers and reports were presented at the conference. Beside Indian participants others were from Australia, Bangladesh, Denmark, Egypt, France, Ireland, Italy, Japan, Mauritius, Nigeria New Zealand, Norway, Pakistan, Spain, Sri Lanka, Sweden, United Kingdom, United States of America and Venezuela.

The Conference was inaugurated by the Marathwada University Vice-Chancellor, Prof. G.R. Mhaisekar and the keynote addresses were delivered by Prof. N.W. Pirie (Harpenden, U.K.) and Dr. Narendra Singh (Mysore, India). Prof. Mhaisekar identified the theme of the Conference as the integration of leaf protein research with the developmental requirements of current times. In discussing 'Some Controversial Aspects of Leaf Protein Research', Prof. Pirie focussed on the areas needing special research attention for promoting the use of leaf protein in human food, emphasising its great potential as the most abundant source and the possibilities of its production by the people in need. As "Perspectives in Leaf Protein Research" for socially useful developments, Dr. Narendra Singh called for comprehensive green vegetation research, not limited to more extraction approach, to extend the resources of fodder, feed and food. He pleaded for practical farm-based programmes of production, and for forage and feed use of the products of processing locally or in the neighbourhood, to demonstrate that the leaf protein approach was an economically viable proposition and activity.

There were five technical sessions for presentation of papers and reports during the Conference. In the I Session, considerable data on choice of raw materials, potential crops and agronomic studies to maximise the yields of extracted leaf protein were provided.

The II Session had papers on new equipment, and also on the techniques for separating protein from the juice and for improving the quality and getting pigment-free leaf protein.

In the III Session, various papers presented information on widely dispersed aspects such as composition, quality and properties of extracted leaf proteins.

The IV Session dealt with studies on use of extracted leaf protein in food and feeds, of pressed residue as forage, and of the deproteinised "whey" in fermentation etc.

The V Session had mainly reports and viewpoints. There were country/institution reports on leaf protein research progress in France, Italy, Japan New Zealand, Pakistan, U.S.A. and also projection for work in a South East Asian region. In addition, there were reports and viewpoints on use of leaf protein in human food. One paper on limited scope of food use of leaf protein in overcoming protein and carotene malnutrition, specially among the children, provoked a lively discussion.

In the Plenary Session, discussions centred mainly around the research in India and the Third World. After some polemics on the draft resolution, emphasizing only food use and that too in children feeding trials, three resolutions were adopted. The main resolution emphasised the focus on leaf protein in human feeding. However, another resolution pointed to the need for encouraging research for other utilitarian purposes. Finally, the initiative of the UNDP in commissioning a report on leaf protein was also given a welcome.

The Plenary Session ended with the announcements from the General Body Meeting of the Society for Green Vegetation Research held on 7 October 1982. The Society's new Secretariat consisted of *President*: Mr. Graham J. Shearer (Alex Harvey Industries Ltd., Auckland, New Zealand), *General Secretary*: Dr. Narendra Singh (CFTRI, Mysore, India), *Treasurer* Mr. S. Younus Ahmed (CFTRI, Mysore India), and *Joint Secretary*: Dr. R.N. Joshi (Botany Department, Marathwada University, Aurangabad, India). A council of 17 representatives from different countries was entrusted with the task of expanding the Society in respective and neighbouring countries. It was decided to hold the next meeting of the International Conference on Leaf Protein & Green Vegetation Research in Japan or in New Zealand in 1985.

Conference of Indian Council of Chemists at Kashmir

A 3 day conference of Indian Council of Chemists was recently held at the University of Kashmir. Prof. Wahid-U-Din Malik (President of the Council) and Vice-Chancellor, University of Kashmir called upon the bio-chemists and bio-engineers to work in collaboration with the chemists for vanishing the pollution in atmosphere. He stressed the need for taking oriented and applied research so that the country could be brought at par with other developed countries of the world.

Referring to the Council of Research for Development, University of Kashmir in carrying out extensive environmental studies on problems such as monitoring and surveillance of Dallake environment with reference to Pollution monitoring etc., Dr. Malik said thrust had been given on both biological and physico-chemical approach in finding solution to those problems.

Dr. Malik stressed upon the Govt. of India to review its policy in respect of fellowships and financial aid to the young scholars and in importing equipments and other infrastructure needed by Research Scholars. The deliberations were held in different fields like inorganic, organic, physical and biochemistry.

More than 500 delegates, eminent scientists and chemists of the country participated in the conference.

It is for the first time that such a big conference was held at the University Campus to explore new ways which could benefit and encourage young chemists of the country. More than 300 papers were presented by the chemists.

Seminar on painiting in Tamilnadu

A two day seminar was held recently at Thanjavur under the auspices of the Tamil University on the theme 'Painting in Tamilnadu.' The purpose was to present a connected and comprehensive account of the growth and development of painting in Tamilnadu and the peripheral areas from the earliest times to the present day. Many scholars, artists and art historians participated in it.

Dr V.I. Subramoniam, Vice-Chancellor of Tamil University, delivering the Presidential Address examined the growth of painting vis-a-vis the richness of the vocabulary of the language or family of languages like Dravidian or Indo-Dravidian.

Dr K.K. Hebbar, Chairman of the Lalit Kala Akademi, New Delhi, inaugurating the Seminar, made a fervent plea for a closer rapport between the artist and the public. His advice to practising artists was that the distinction between modernity and tradition being irrelevant and inconsequential the emphasis should be on the spirit of art so that whatever was painted or sculpted came alive.

Professor V.R. Amberkar, the eminent art historian of Bombay, discussing the painter's concept of art observed that there was no such thing as originality. He described creativity as nothing but the establishment of new relationships between line, colour and space so that the inner balance and rhythm were maintained.

Karl Khandalawala of Bombay, an authority on Indian miniatures, in his valedictory Address expressed his ardent admiration for the rich artistic heritage of the Tamils. He said that the Tamil artist's creative genius was best seen in the Pallava paintings at Kancheepuram and Panamalai which he described as most charming because of their subdued colours and sensitive lines.

Papers were read by a number of scholars on different aspects of painting in Tamilnadu in its various historical phases and artistic nuances.

Forty new courses at Madras Varsity

The Madras University recently launched nearly 40 courses at the degree, diploma and certificate levels which are "relevant to the present-day needs of the society".

While some of the courses in areas like ocean life sciences, industrial microbiology and polymer sciences are being started for the first time in the university, others are courses, which were discontinued two or three years ago and are now being revived, modified and restructured. Many of the M.A. and M.Sc. courses are also interdisciplinary in nature.

Inaugurating the courses at a function at the university, the Education Minister, Mr. C. Aranganayagam, said the launching of a large number of socially relevant courses in a single year, as had never been done in the past, indicated that the university was trying to live up to its reputation.

It was the responsibility of the universities to find out, through constant study and research, what was required to meet the rapidly changing needs of the society, and restructure its programmes.

The Vice-Chancellor, Dr. M. Santappa, who presided, said to keep pace with the social changes and trends in science and technology, the university was introducing a number of interdisciplinary and innovative courses which were not available in the affiliated colleges.

All-India test for admissions to PG Engg courses

An All-India test for admissions to postgraduate courses in engineering and technology will be conducted at selected places from the academic year 1983-84.

The test to be called Graduate Aptitude Test in Engineering (GATE), will form the basis for admissions to postgraduate courses in all the five I.I.Ts at Delhi Bombay, Madras, Kanpur and Kharagpur and the Indian Institute of Science at Bangalore.

The I.I.Ts and the Bangalore institute will only accept students qualifying the GATE test. No separate qualifying test will be conducted by them.

It is expected that certain other engineering institutions will also accept the GATE test as the basis for admissions to postgraduate courses.

The Sciences and the Vedas

The Maharshi Academy of Vedic Sciences, Ahmedabad, which is a postgraduate institute recognised by the Gujarat University for Ph.D., is proposing to prepare a volume on sciences and the vedas. The Academy has invited scholars in the vedas to share and enjoy the fruits of their scholarship by writing an article on the theme. Those interested may send their contributions to the President of the Academy, Shri Ishwarbhai J. Patel.

The Academy has also started a correspondence course in upanisadas in Gujarati.

Amber Charka unit in Karnatak Varsity

The Centre for Training and Spinning on Amber Charka which is to integrate theory and practice was inaugurated recently at the Gandhi Bhavan, Karnatak University by Dr D.M. Nanjundappa, Vice-Chancellor. He stressed the need for relating higher education to the conditions prevailing in the society. He said there was a need to relate education with productivity, so that education might become useful to the needs of the people.

He said the introduction of the Amber Charka unit would bring along with it a psychological and spiritual change in the attitudes of people concerned.

All-India cultural festival at BITS

All-India Cultural Festival, Oasis 1982, was organised by the BITS Students' Union from 5 November to 9 November 1982. Thirty-two teams from eleven States of India comprising 319 students (263 boys and 56 girls) participated in the Festival.

The Festival was inaugurated by Sri Jaidev, the noted film director. The other highlights of the Festival were "Shame-e-Ghazal" and a Western Music programme.

The prize to the winners were awarded by journalist Ms. Amita Malik,

Universities and villages

A three-day workshop on the role of universities in rural development, was organised by the University Grants Commission, at the Delhi School of Social Work recently.

The workshop is expected to prepare a report on the role of universities in rural development with particular reference to problems of rural development and dimensions of research, teaching and action management and setting up structures to integrate and link the various activities.

Herostones near Namakkal

On information kindly supplied by a teacher of a School, in Namagiripettai, the Department of Epigraphy of the Tamil University recently copied for the first time two herostones belonging to the period of Parantaka I and his descendant Aditya II Karikala Chola from Kulipatti near Namakkal.

The first herostone records the heroic death of Sadaya Maraiyan and also his attempt to save his son Araiyan Ayiravan during the cattle raid by Kodukkamangalattu ralvan. To perpetuate the memory of his deseased father, the son had erected this Nadukal.

The Second herostone which is dated in the fourth regnal (A.D. 964) year of Aditya Karikala, mentions heroic death of Araiyan Ayiravan *alias* Ilansingalattarayan in the act of defending the cattle of the village from the enemies. Ekaviramuttarayan the resident of the village erected the memorial stone in honour of the deceased. Interestingly the herostones of the father and son are planted side by side on one and the same place. These two inscriptions show the supremacy of the Chola ruler as far as Namakkal at the beginning of 10th century, and the occurrence of certain phrases, are of absorbing interest to the students of linguistics.

U.G.C. institutes four awards

The University Grants Commission has instituted four awards of Rs 10,000 each to be given away every year to outstanding scientists.

The award money will come from the endowment created with funds received from the Hari Om Trust, Nadiad (Gujarat).

AIU Li

The new awards are the Sir C.V. Raman Award for research in physical sciences, the Homi J. Bhabha Award for research in applied sciences, the Meghnad Saha Award for research in theoretical sciences and the Jagdish Chandra Bose Award for research in life sciences.

The U.G.C. has invited nominations by December 31 for awards from the universities, research institutions, professional societies and appropriate national organisations.

Abode for feathered guests of Punjab

More than 170 students of the Punjab Agricultural University will work for the next fortnight on digging an artificial lake for migratory birds at the Zoological park at Chhat Bir near Chandigarh.

This programme which started recently under the National Service Scheme has been organised by the Directorate of Students' Welfare.

Dr. Y.P. Chaudhri, Director of the Zoological Park said that the artificial lake would be lined with polythene sheets to prevent seepage.

Essay competition for good citizenship

The Citizenship Development Society, a non-political and non-profit making body formed with the objective of fostering good citizenship committed to basic values such as honesty, justice, duty, discipline, public interest and a democratic way of life, proposes to hold an essay competition for good citizenship.

The Society invites essays from university teachers, research scholars and other postgraduates on the following aspects of citizenship : (i) Implications of Good Citizenship; (ii) Citizenship and Development; (iii) How to make a good citizen; and (iv) Factors responsible for Regional Variations in the level of citizenship. The best essay will carry a first prize of Rs. 500 and the second and third prize will carry a sum of Rs. 300 and Rs. 200 respectively.

Entries may be sent to the Member-Secretary, Citizenship Development Society, R-66, Greater Kailash-I, New Delhi-110048. The last date of receipt of entries is 15th March, 1983.

News from Abroad

ACU Travelling Fellowship Programme for academic decision makers

The Association of Commonwealth Universities at London has just announced a new scheme of Travelling Fellowship for senior academic staff who have to discharge administrative responsibilities. The objective of the new Senior Travelling Fellowship scheme is to help leaders of the academic community involved in administration and management of some major part of their own university enterprise to visit counterpart institutions in the Commonwealth to test and inform their own experience and to learn and impart new administrative or organisational techniques or developments. In terms of the announcement made by the ACU those likely to benefit include such senior officers as Deans of Faculties, heads of research or teaching schools or of major academic service units, pro-vice-chancellors, etc.

The new programme is largely funded by the Leverhulme Trust.

This fellowship is in addition to Career Administrative Fellowship known as the Administrative Travelling Fellowship already being operated by the ACU.

New ceramic produced in Australia

Australian scientists have produced a ceramic which could lead to greater efficiency in diesel engines and improved artificial joints and have wide application in industrial processes.

The ceramic, known as partially stabilized zirconia. (PSZ), combines exceptional toughness with a high degree of resistance to rapid temperature change. It was developed by researchers at the Advanced Materials Laboratory of the Commonwealth Scientific and Industrial Research Organization] (CSIRO) in Melbourne.

The Australian Minister for Science and Technology, Mr. David Thomson, said an Australian company, Nilsen Sintered Products, had begun developing international markets for PSZ products.

"Most ceramics are very brittle materials and also tend to shatter if subjected to rapid temperature change, especially at very high temperatures", Mr Thomson said. In 1975, during fundamental research into the properties of PSZ, CSIRO made the important discovery that under certain conditions of stress the ceramic actually gets stronger.

Artificial bones made from PSZ were undergoing clinical trials. PSZ was inert in the body and its exceptional strength and low friction properties indicated it would be more durable than polymer materials used at present.

[*Courtesy* : The Australian Information Service Newsletter.]

News from Agril. Varsities

All India co-ordinated project on national demonstration at Gauhati

(*From Our Correspondent*)

A three-day annual workshop on All-India co-ordinated Project on National Demonstration was recently organised by the ICAR, New Delhi and the Assam Agricultural University, Jorhat at the University's Khanapara Campus, Gauhati. The workshop was inaugurated by Dr J.M. Choudhury Vice-Chancellor Gauhati University while Dr N.S. Randhawa, Deputy Director General, ICAR presided over the inaugural session. About 70 agricultural scientists representing the Agricultural Universities, State Agriculture Departments, ICAR Research Institutes, where the National Demonstration Project is being implemented, participated in the Workshop.

Inaugurating the workshop Dr J.M. Choudhury, Vice-Chancellor of the Gauhati University, appealed to the agricultural scientists and extension workers to take into consideration various local conditions such as, traditions, habits, climate: landuse pattern, etc. while trying to transfer technology in land. Dr Choudhury further said appropriate indigenous technology should be developed to improve our age-old agriculture instead of looking for western technology.

Presiding over the session, Dr N.S. Randhawa, Deputy Director General, ICAR, while expressing concern that the country's food-grains production has stagnated at about 130 million tonnes annually against an ever increasing population said this year's target of 139 million tonnes would be difficult to achieve because of flood and droughts. He However, expressed his optimism that the country's food grain output could be substantially increased by proper application of technology and popularisation of double cropping, inter-cropping etc. He also asked the workshop to identify suitable districts, crops, people and scientific and technological support required for making the national demonstration programme effective.

Dr D.P. Motiramani, emphasised on the special efforts required to increased food grains production in the country by two to three times the present levels by 2000 A.D. to feed the increasing number of months. Stressing on the role of extension in achieving this, he said extension philosophy should be to provide a living to the farmers.

The Agricultural production Commissioner, Assam, Shri H.N. Das urged upon the agrtcultural scientists to help overcome the twin problems of low productivity and inadequate production in agriculture in Assam and the N.E. Region, leading to large scale imports of food grains.

Dr C. Prasad, Project Director (LLP), ICAR, said that though the country had made rapid progress in increasing agricultural production the rate of transfer of technology had not kept pace with the advances made through massive research efforts. For instance the gap between production and the potential ranges from 0.5 to almost 5 times with some fluctuations from crop to crop and state to state, agricultural production in the country could be easily doubled if the transfer of technology efforts are strengthened.

Indo-Netherlands project on hydrological studies

An operational project of technical cooperation between the Govt. of India and the Netherlands will be established in the field of hydrological studies. This was disclosed by Dr J.S.P. Yadav, Vice-Chancellor after he had a meeting with the members of a Dutch Mission which arrived at Hissar recently to finalise, in consultation with the Haryana Agricultural University Scientists, the details of the technical programme for the operational project.

Dr Yadav said that this Indo-Dutch project aims at finding the methods most suitable to local conditions for stablising the water table at their present levels, and for lowering it in those areas where it is too high or within crtical depths to be detrimental to the production of the crops.

The project also aims to control the soil salinity in the absence of possibilities to dispose of brackish or saline drainage effluent. The Dutch Mission consists of Mr R. Van Aart who is an Irrigation and Drainage Engineer at the International Institute for Land Reclamation and Improvement, and Mr Jan Hubert Boumas, who is a senior consultant at the Euro-consult agency in Holland.

Mr Boumas said that on the Dutch side, the cooperating governmental agency will be the International Institute for Land Reclamation and improvement while on the Indian side Haryana Agricultural University, would take up the project on behalf of the Indian Council of Agricultural Research.

The total cost involved in this project is Rs. 60 lacs of which 10% i.e. about 5 lakhs would be borne by the Govt. of India. The project which is likely to begin in January next year will be executed on the HAU research farm and the surrounding areas of Hissar. Under the project yearly detailed surveys with respect to soils, tropography, and quality of ground water will be conducted for four years. An appropriate number of shallow tubewell will be installed. A net work of observation wells will also be installed. Also, an efficient irrigation system will be laid out to minimise the irrigation losses.

Focus on classification of insects

Inaugurating a national symposium on Advances of Insect Taxonomy (classification and naming), Dr M.S. Randhawa said that Taxonomy is basic to research in biology because unless a name is given to a group of insects, one cannot write about them and say whether it is useful or harmful.

Dr Randhawa recalled that it was Linnacus who first put forward the idea of naming animals and plants in 1758. Since then a lot of work has been done in India. We must develop our own expertise so that we do not depend on foreign experts, he added.

The Symposium has been jointly sponsored by the Indian Council of Agricultural Research and the Punjab Agricultural University and was attended by about fifty biologists from all over the country.

Dr Randhawa said there was a need to establish a museum of insects which will be a very useful teaching aid.

In his presidential address the Vice-Chancellor Dr Sukhdev Singh said that the University had a sufficiently large collection and other facilities where scientific classification of insects could be done. Such facilities, he said, should be made available at other centres also where expertise is available for the identification of animals and pests.

Earlier Dr S.S. Goraya, Head of the Department of Zoology welcomed the delegates.

U.P. agricultural team visits PAU

A Select Committee of the U.P. Legislative Council led by the Minister of Agriculture Shri Yashpal Singh visited Punjab Agricultural University to seek guidance on a uniform model Act for all the three agricultural Universities at Pantnagar, Kanpur and Faizabad. They had a long meeting with the Vice Chancellor Dr Sukhdev Singh to know how best to run the research extension and teaching work of farm Universities. Besides, they visited the College of Agricultural Engineering to know what type of machines could be useful for their state. They also met Dr Khem Singh Gill, plant breeder, to know about the new directions on research in wheat, oilseeds and pulses. They also visited the Soil Science department to know how to organise the work of testing soils in their state.

The team would also visit Haryana Agricultural University, Hissar.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Arun Kumar. Study of some socio-economic factors underlying attitude of people towards aging. University of Bihar.

2. Chandel, Naresh Kumar. Affiliation, attention and spacing mechanisms among free ranging rhesus monkeys, macaca mulatta. University of Rajasthan.

3. Mishra, Radha Kant. Effects of noise and modes of presentation on levels of processing of verbal and pictorial materials. Banaras Hindu University.

4. Patel, Jagdishchandra Bhailalbhai. Investigation to study motives, concerns and fear of failure ideationally conformist and deviant university students. M.S. University of Baroda.

5. Shrotriya, Manish. Comparative study of personality patterns of women convicts and non convicts. Banaras Hindu University.

Sociology

1. Dayal, Philip. Level of social integration of ethnic minorities: A case study of the Christians of Gurdaspur Distt. in Punjab. Panjab University.

2. Pachori, R.S. Training and training needs of agricultural extension personnel in relation to agricultural development. University of Jabalpur.

3. Parekh, Ranjan. Adolescents : Their social background and problems. Shreemati Nathibai Thackersey Women's University, Bombay.

Political Science

1. Baruah, Apurba Kumar. David Easton : An analysis of his contribution to the study of political science. Panjab University.

2. Dubey, Vidyut Prabha. Bhartiya rajnitik paddhati mein sarvochya nyayapalika kee bhumika. Vikram University.

3. Gaur, Satish. Bharatiya sansad evam nyayapalika. Vikram University.

4. Gobinder Singh. Religion and politics in Punjab : A case study of the Shiromani Gurdwara Prabandhak Committee. Panjab University.

5. Jarouli, Smriti Rekha. Matdata kee mansikta aur aam chunav. Vikram University.

6. Maira, Renu. Black Muslim movement in the United States : A study of the roles of Elijah Muhammad and Wallace D. Muhammad. Jawaharlal Nehru University.

7. Mishra, Pramod Kumar. Intra-regional interaction in South Asia with special reference to Pakistan, Nepal and Bangladesh. Jawaharlal Nehru University.

8. Shrivastava, P.K. Critical analysis of the working of rural development administration and planning in the district of Jabalpur. University of Jabalpur.

9. Tripathi, Hari Krishna. Madhya Pradesh mein Panchayati Raj : Bhind zile ke vishisht sandarbh mein : Ek vishleshnatmak adhyayan. Jiwaji University.

10. Tyagi, Yogesh Kumar. Role of the Human Rights Committee in the implementation of human rights. Jawaharlal Nehru University.

Economics

1. Bhat, Mohd. Sultan. Study of agricultural taxation in Jammu and Kashmir with special reference to post 1947 period. University of Kashmir.

2. Bimalendu Bikash. Corporation tax in India. Banaras Hindu University.

3. Harbhajan Singh. Study of earnings and education among employees in Delhi Union Territory. Guru Nanak Dev University.

4. Kawadia, G.L. Study of the trends in agricultural wages in M.P. and factors affecting them. Vikram University.

5. Nema, Prakash Chandra. Study of organised markets of agriculture produce in Mahakoshal (M.P.). University of Jabalpur.

6. Paswan, Yogeshwar. Planning and economic development : A case study of Scheduled Castes in Bihar. Lalit Narayn Mithila University.

7 Prabhudevaswamy, C.S. Organisational and spartio-functional characteristics of agricultural co-operative societies. University of Mysore.

8. Sen, Pradip Kumar. Deficit financing in India: A cause effect analysis. Banaras Hindu University.

9. Singh, Mahender Pal. Functional study of Madhya Pradesh financial corporation in relation to the industrial development of M.P. Vikram University.

10. Sudarshan Pillai, P. Economics of rural electrification in Madhya Pradesh. University of Jabalpur.

Law

1. Gill, Kulwant Kaur. Concept of women's property : Its origin and development in the Hindu Law. Panjab University.

2. Khan, Ahemedullah. Industrial relations and the law in Ahmedabad textile industry. Osmania University.

Education

1. Amin, Najma. Study of relationship between spatial egocentrism and conservation of length and area. Jamia Millia Islamia.

2. Bedi, Harjit Singh. Aspirations of adolescents as related to socio-economic status intelligence and sex. Panjab University.

3. Bhaskara, S. Study of the effectiveness of verbal creativity instructional materials at school stage. M.S. University of Baroda.

4. Chauhan, Chandra Pal Singh. Evaluation of achievement in Algebra of class X students in Delhi schools with reference to categories of Guilford's structure of intellect model. Jamia Millia Islamia.

5. Gupta, Sneh. Study of selected input-output relationship of elementary teachers training institutions in Punjab : A systems approach. Panjab University.

6. Harpreet Mohan Kaur. Personality profiles of successful higher secondary physical education teachers. Punjabi University.

7. Jain, Bimala. Study of classroom behaviour patterns of teachers in relation to their attitudes towards profession, morale and values. Jamia Millia Islamia.

8. Jain, Rajendra Prasad. Study of cosip and cohssip sponsored by the U.G.C. in selected colleges of India. M.S. University of Baroda.

9. Karihaloo, Sarla Kumari. Comparative study of different types of schools in relation to personality growth. University of Kashmir.

10. Mohammad Miyan. Study to examine the effectiveness of methods of teaching mathematics in developing mathematical creativity. Jamia Millia Islamia.

11. Nakpathumswat, Prasit. Role of the university rectors in educational decision making in Thailand. Panjab University.

12. Sukumaran, Padmini Manayath. Growth of exclusion of vairables during adolescence : A study. University of Rajasthan.

13. Syed Yusuf Shah. Politicization of higher education in British India : A case study of the establishment of Aligarh Muslim University 1875-1920. Jawaharlal Nehru University.

14. Verma, Om Prakash. *Sociological study of four major dysfunctions in Delhi Schools.* Jamia Millia Islamia.

15. Vishwakarma, Ram Lakhan. Bhartiya samvidhan ke anuchchhed 45 ka Bundelkhand mein kriyanvayan : Uplabdhi evam samasyayen. Bundelkhand. University.

Commerce

1. Ananthan, B.R. Regional development banks : A performance evaluation. University of Mysore.

2. Basu, Barindra Kumar. Insight into auditing : A *multidimensional approach. D.Litt.* University of Calcutta.

3. Jain, Susheel Kumar. Malva kee krishi vitta vyavastha mein bankon ka yogdan Ujjain evam Ratlam zilon ke vishesh sandarbha mein. Vikram University.

4. Kaushik, C.L. Bastar zile mein gramin sahkari sakha : Ek adhyayan. Ravishankar University.

5. Lohani, Sharada. Agricultural inputs corporation of Nepal: A study in organisation and management and its impact on agirculture. Panjab University.

6. Mall, Chandra Prakash. Role of industrial development *bank of India in the industrial growth of the country.* Banaras Hindu University.

7. Mishra, Aditya. Marketing management of public sector industrial enterprises in Uttar Pradesh : A case study. Banaras Hindu University.

8. Sengupta, Sunil Kumar. Development-rebate-an incentive towards industrial growth in India. University of Culcutta.

9. Upadhyay, Narottam Prasad. Personnel management in manufacturing public enterprizes in Nepal. Panjab University.

Business Management

1. Bijoy Kumar. (O,1) Matrix graphs and organisation graphs. University of Bihar.

HUMANITIES

Philosophy

1. Babra, Daya Kaur Dharma ke darshnik adharon ka samalochanatmak adhyayan. University of Jabalpur.

2. *Mishra, Madhuri. Problem of evil with special reference* to Sri Aurobindo. Bihar University.

3. Pant, Uma. Philosophy of P.F. Strawson in the context of the analytical movement in U.K. Banaras Hindu University.

Linguistics

1. Nainar, S.M.M. Arabic loan words in *Hindi,* Urdu and Tamil. Jawaharlal Nehru University.

2. Prabha, Pitamber. Rasalankar drishatya loukikchhandsam sameekshatmak adhyayan. Panjab University.

3. Shobha Rani. Treatment of sentence in sanskrit grammar : A linguistics philosophic approach. Panjab University.

4. Thakur, Vidya Chand. Kalanti bhasha ke sanskrit mu'ak shabd : Ek bhasha vaigyanik adhyayan. Himachal Pradesh University.

Fine Arts

Music

1. Naik, Jawaharlal. Bhartiya avnaddha vadhyon ka vishleshnatmak adhyayan. Indira Kala Sangit Vishwavidyalaya.

2. Sathianathan, S. Wardha. Contribution of saints and seers to the music of India. Indira Kala Sangit Vishwavidyalaya.

Literature

English

1. Naik. Leela. Burden *of light* verse *in* America : Don Maouis, Phyllis McGinley and Ogden Nash. Osmania University.

2. Sharma, S. Subrahmanya. Christopher Fry: A study in themes and technique. Karnatak University.

Sanskrit

1. Chattopadhyay, Pratima. Samkhya elements in Vedic and Puranic thought. University of Calcutta.

2. Gupta, Urmil. Mahakavi Shri Sita Ram Parvanikar rachit Raghav chatratraya: Adhyayan evam sampadan. University of Rajasthan.

3. Kanhe, Vasant *Krishnarao.* Ashtangrehdysya Sanskritikam adhyayanam. Ravishankar University.

4. Krishna Kumari. Geography in ancient sanskrit inscriptions from A.D. 650 to A.D. 1000. Panjab University.

5. Sharma, Radhe Shyam. Treatment of vedic deities in the nirukta of Yaska. Panjab University.

6. Vij, Sushma. Critical and comparative study of the different schools or Samkhya. Panjab University.

Punjabi

1. *Bains, Sat* Parkash Kaur. *Adhunik kal, 1850 to 1975* da var kav da alochnatmak adhyayan. Panjab University.

2. Jaswinder Singh. Critical study of cultural patterns and values in Punjabi kissa poetry 1900-1950. Punjabi University.

3. Karanjit Singh. Reflection of social reality in Punjabi folklore with special reference to folksongs. Panjab University.

4. Santokh Singh. Teja Singh dee nibandkari da alochnatmak adhyayan. Panjab University.

5. Sukhdev Singh. Study of imagery in the poetry of Mohan Singh. Panjab University.

Hindi

1. Agarwal, Vijay Kumar. Swatantrayottar Hindi upanyason mein abhivyakti samanti jiwan ka anusheelan. Ravishankar University.

2. Agrawal, Sudha Rani. Ritikalin Hindi kavita mein darbari sanskriti. Banaras Hindu University.

3. Amaranath, Silla. Comparative study of Hindi and Telugu progressive poetry with special reference to Nagargun and *Sri Sri. Jawaharlal* Nehru *University.*

4. Chanchal, Rani. Hindi ke madhyakaleen natakon ka adhyayan : Hanumannatak vachitar natak evam devmaya paripanch natak ke vyshisht sandarbh mein. Panjab University.

5. Devi Prasad. Bundelkhand kee sanskriti aur Vrandavan Lal Verma ke upanyas. Bundelkhand University.

6. Khosla, Surinder Mohan. Hindi kahhni mein vyaktitiv-vighatan swarup avem vishleshan. Panjab University.

7. Kiran, Rajiv Kanti. Urvashi ke shabda shakti mulak adhyayan. Panjab University.

8. Lakshmi Prasad, Yarlagadda. Contribution of Andhras to Hindi poetry. Andhra University.

9. Mishra, Jai Prakash. Bhaktikalin sahitya ke sandarbh mein Naath sahitya ka mulyankan. Banaras Hindu University.

10. Misra, Saroj Kumar. Hindi natakon mein badalte samajik mulyon ka anusheelan. Ravishankar University.

11. Pandey, Kailash Pati. Charitrik paripreksha aur Ramcharit Manas. Banaras Hindu University.

12. Pattabhi Ramaiah, Kakani. Dinkar kee kavita mein bimb yojana. Andhra University.

13. Raina, Upendra Nath. Sathottari Hindi tatha Kashmiri kavita mein adhunik sanvedana. University of Kashmir.

14. Saxena, Rekha. Swatantrayottar Hindi natak : Samajshastriya adhyayan. Jiwaji University.

15. Shrivastava, Usha Rani. Haridasi sampradaya avem Radha Vallabh ke pramukh Hindi kaviyon ka tulnatmak adhyayan. Bundelkhand University.

16. Sumbly, Kuldeep. Anchalik upanyaskar Phanishwarnath Renu : Vyaktitva aur krititva. University of Kashmir.

17. Suri, Uttam. Sushri Mahadevi Verma ke gadya sahitya kee vakya kee sanrachana ka bhashavaigyanik adhyayan. Bundelkhand University.

18. Tewari, Lalmani. Vidyapati ka aprastut-vidhan. Banaras Hindu University.

19. Thakkar, Pushpa. Dinkar kavya ke pariprakshe mein Kavita mein yug chetna. S.N.D.T. Women's University.

20. Tsewang, Dorja. Laddakh ke lokgeet. University of Kashmir.

Urdu

1. Jafar Raza. Prem Chand Kahani ke rehnuma and Prem Chand-Fun aur tamoori fun. University of Kashmir.

2. Koul. Sohan Lal. Social satire in 19th century Urdu prose. University of Kashmir.

3. Mohamed Nooruddin. Deccan in books attributed to Khwaja Bandanawaz. University of Mysore.

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1. Bandyopadhyay, Subhashan. Abanindranather sahitya samiksha. University of Calcutta.

2. Biswas, Purabi. Shelley-Keats-o-Rabindranath. University of Calcutta.

3. Brahma, Tripati. Banglar laukik dharma sangit. University of Calcutta.

4. Majumdar, Sankar. Approach to the art of the real with particular reference to Rabindranath Tagore, the post painter as a rebel in the realm of it. University of Calcutta.

5. Mazumdar, Sanjey. Sahityer swarup-sandhane Rabindranath-o- Mohitlal. University of Calcutta.

6. Sengupta, Kathakali. Bankim Chandra-o-Tahar anusariganer sahitya jignasa. University of Calcutta.

7. Sinha, Santa. Kathasahitye Narendranath Mitra O Narayan Gangopadhyay. Banaras Hindu University.

Oriya

1. Ray, Gauranga Charan. Yasovanta Das : Jivanakruti darsana. Utkal University.

Gujarati

1. Mehta, Nitin Shantilal. Study of poetic diction of Gujarati poetry since 1956. M.S. University of Baroda.

Persian

1. Jan, Ghulam Rasool. Sharh-i-hayat wa Asari Sarfi Kashmiri. University of Kashmir.

Kannada

1. Ramachandre Gowda, H.S. Kannada janapada kathavargagalu. University of Mysore.

Telugu

1. Srivalli, Naraparaju. Ramanatakanu seela namu. Andhra University.

2. Subba Rao, Vavilala. Chalam gari kathanika sahityam anusoolanamu. Andhra University.

3. Subrahmanyam, Vadla. Socio-cultural study of native games, sports and amusements in Telugu Literature. Nagarjuna University.

Geography

1. Mishra, Banwarilal Ramgopal. Commerce of Broach upto 1815. M.S. University of Baroda.

2. Mishra, Krishna Kumar. System of service centres in Hamirpur District U.P. India. Bundelkhand University.

3. Mithilesh Kumar. South Mirzapur : A study in recent changes in land use pattern. Banaras Hindu University.

4. Mohapatra, A.C. Regional inequality in India, 1960-61 to 1978-79 : An empirical study of income, population and welfare in the context of intra and inter-regional variations. North Eastern Hill University.

5. Ray, Sukla. Changing geographical personalities of Darjeeling District in West Bangal. University of Calcutta.

6. Singh, Tara Devi. Special patterns of population in the cities of U.P. India. Banaras Hindu University.

7. Soundaravalli, G. Geomorphology and hydrology of Chittar Basin, Tirunelvelli District. Osmania University.

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1. Chaudhury, Ira. Ilbert Bill andolan 1883-84. Banaras Hindu University.

2. Dube, Sita Ram. Baudha sangha ke prarambhika itihasa ka ek adhyayan. Banaras Hindu University.

3. Khosa, Sunil. Art of painting in Kashmir : Medieval Period. Banaras Hindu University.

4. Pawa, Saroj. British diplomacy in Rajasthan : From 1858 to 1931. University of Rajasthan.

5. Saxena, Harish Mohan. History of the baronical house of Uniara, 1727-1969 A.D. University of Rajasthan.

6. Shukla, Shanta. Chatisgarh ka Samajik, arthik itihas, san 1901 isvi se san 1947 isvi. Ravishankar University.

7. Viswakarma, Ishwar Sharan. Historical geography of Kasi. Banaras Hindu University.

8. Vani, Mohd Ashraf. Some aspects of the socio-economic and cultural life of the people of Kashmir under the Sultans. University of Kashmir.

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A list of select articles culled from periodicals received in AIU Library during November, 1982

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Hirst, Paul H. 'Professional authority : Its foundation and limits.' *British Journal of Educational Studies* 30(2); June 82 : 172-82.

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Rice, Alan. "Educational reform and the question of implementation." *British Journal of Educational Studies* 30(2); June 82 : 183-98.

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Bess, James L. "Motivation to teach : Meanings, Messages and morals." *New Directions for Teaching and Learning* (10); June 82 : 99-107.

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Madhukar, G.K. Rathi. "NSS : An introduction to practical education." *University News* 20(20); 15 Oct 82 : 642.

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Hwang, Jong-Gon. "Adult education and industrial/urban development." *Bulletin of the Unesco Regional Office for Education in Asia and the Pacific* Jan 82 : 159-76.

Lyon, E.S. and Turnbull, A. Continuing education and the quality of work." *Higher Education Review* 14(3) : Summer 82 : 56-64.

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Amrik Singh. "Stray thoughts on education in India." *Indian Education* 12(7); Oct 82 : 9-14.

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CLASSIFIED ADVERTISEMENTS

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRUSHINAGAR-385506
DISTT. BANASKANTHA

Advertisement No. 7/82

Applications are invited in the prescribed forms for the following posts for National Agricultural Research Project, Indian Council of Agricultural Research's Schemes and other Schemes of the Gujarat Agricultural University.

Sr. No.	Name of the Post	Pay Scale of the Post	Discipline
1.	Principals	Rs. 1500-60-1800-100-2000-125/2-2500.	1. College of Agriculture, Dantiwada and Anand. 2. Aspee College of Nutritional Science and College of Home-Science and Food Technology, Dantiwada.
2.	Professors/Research Scientists.	-do-	Agronomy, Cytogenetics, Plant Breeding / Agril. Botany. Agril. Economics, Bio-Chemistry, Vety. Pharmacology, Vety. Bio-Chemistry, Nematology, Plant Pathology, Meteriology, Plant Physiology.
3.	Associate Professors/ Associate Research Scientists.	Rs. 1200-50-1300-60-1600-Assessment 60-1900.	Plant Pathology, Agril. Botany/ Plant Breeding, Plant Physiology, Agronomy, Agril. Entomology, Agril. Extension Education, Horticulture. Agri. Economics, Dairy Chemistry, Dairy Engineering, Dairy Microbiology, Dairy Technology, Agril. Engineering, (Farm Engineering, Process, Engineering and Soil Water Engineering etc.) Vety. Pharmacology, Anatomy, (Home Science Nutrition. Food Technology), Agril. Statistics (Statistical, Data Processing) Bio-Chemistry.

Application forms and other details regarding qualification and experience can be had from the Registrar, Gujarat Agricultural University, Sardar Krushinagar 385506, Dantiwada, Dist. Banaskantha on cash payment of Rs. 2/- or by sending crossed Indian Postal Order of equal amount issued in favour of "Comptroller, Gujarat Agricultural University Sardar Krushinagar", alongwith the self addressed envelope (23cmx11cm) affixed with Rs. 1-30 paise postage stamps. The last date for obtaining the application forms for the post shown above is **30-12-1982**.

The candidates already in the service of this University may also apply through their respective officers in prescribed proforma with six copies of authenticated bio-data without I.P.O. All candidates called for interview will have to attend the same at their own cost.

The last date for receiving applications complete in all respects is **15-1-1983**.

Note :—*1. Candidate should note* that all the members of the staff are transferable to any of four campuses of the University i.e. Anand, Junagadh, Navsari and Dantiwada and to any of the research stations in rural areas of the State.

2. Incomplete applications shall not be considered.

3. Only those who fulfil the qualifications should apply before time limit.

4. If the Selection Committee does not find a suitable candidate for appointment as a Associate Professor in the discipline of Food Technology and Nutrition (Home Science) for lack of qualification and experience, the same shall be relaxed subject to approval from academic council of University.

5. The University reserve to itself the full rights to fill up or not to fill up any or all the posts and give appointment to the candidates selected by Selection Committee.

6. More eligibility does not vest any right on the candidates by being called for the interview.

7. Canvassing in any form will completely disqualify a candidate for employment under this University.

M.P. Vaishnav
REGISTRAR

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

HYDERABAD

Advertisement No. : XIX/82

Applications on the prescribed form together with the application fee are invited for the following posts in the Institute service so as to reach the undersigned on or before **27-12-82**.

I. *Professors/Senior Fellows*

Scale of Pay : Rs. 1500-60-1800-100 2000-125/2-2500.

1. Deptt. of Radio, TV & Cinematography
2. *English* Literature
3. Regional Centre, Lucknow
4. Methods (leave vacancy)

Qualification
Essential

First or high second class Master's degree in English. An eminent scholar with a doctor's degree or published work of high quality, actively engaged in research. 10 years' experience of teaching and/or research. Experience of guiding research at doctoral level

or

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Desirable

For Post No. 1

Knowledge of Broadcasting media and experience of writing and producing Radio/TV programmes.

For Post No. 2

1. Specialisation in Stylistics, or Modern English Literature and Criticism or Aesthetics. 2. Special interest in English Language Teaching Programmes.

For Post No. 3

Experience in teacher training, materials production and extension work in the subject concerned.

For Post No. 4

Experience of organising research and teacher training programmes in Methods and Materials Production and extension work in the field of English Language Teaching.

II. Readers/Fellows

Scale of Pay : Rs. 1200-1900

1. Deptt. of Radio, TV and Cinematography
2. **Deptt. of German**
3. **Deptt. of French**
4. **Deptt. of Russian**

Qualification

Essential

(a) At least a second class Master's degree in the subject concerned or an allied subject. Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods, or (iii) production of teaching materials, or (iv) teacher training and extension work at secondary/college level.

(b) About 5 year's experience of teaching and/or research, with at least three years experience as lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Subjects concerned or allied subject : Post No. 1 English; Post No. 2 : German; Post No. 3 : French; Post No. 4 : Russian.

Desirable

Post No. 1

Knowledge of Broadcasting media and experience of producing Radio/TV programmes.

Post No. 2 to 4

(i) Specialised training in the teaching of the subject concerned.

(ii) Experience of writing and producing instructional materials and/or training in translation and interpretation.

(iii) High level competence in English.

III. Lecturer/Associate Fellow

Scale of Pay : Rs. 700-1600

1. Deptt. of English Literature
2. Deptt. of Radio, TV & Cinematography
3. Regional Centre, Lucknow/Shillong
4. Deptt. of Russian
5. Deptt. of German.

Qualification

Essential

(a) Consistently good academic record with first or high second class (B in the 7 point scale) Master's degree in English or an allied subject.

(b) A doctors degree or research work of an equally high standard.

Desirable

Post No. 1

Special interest in Modern English Literature / Criticism / Stylistics / Indian English writing.

Post No. 2

Specialised training in the teaching of English through Mass-Media. Knowledge of producing TV programmes.

Post No. 3

Experience of organising ELT programmes and producing teaching materials.

Post No. 4 & 5

Experience of teaching and producing materials in the subject concerned.

Subject concerned or allied subject

Post No. 1 to 3 English; Post No. 4 Russian; Post No. 5 German.

Provided that any of the qualification prescribed in (a) above may be relaxed in the case of a candidate with research work of very high standard. Provided further that if a candidate possessing a doctor's degree or equivalent research work is not available or is not suitable, a person possessing a consistently good academic record (weightage being given to M. Phil/M. Litt or equivalent degree or research work of quality) may be appointed, provided he has done research work for at least two years or has practical experience in a research organisation/laboratory, on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivally high standard within five years of his appointment, failing which he will not be able to earn further increments until he fulfils these requirements

General information

Post under I (4) is a leave vacancy for about two years. Posts under I (2), II (2&4) and III (4&5) are permanent. All other posts are under Plan but likely to continue.

Persons who applied for posts No. 1 to 3 under (I) in response to our advertisement No. IV/81 need not apply afresh.

The Institute pays allowances at Central Government rates with the benefit of Contributory Provident Fund-cum-Gratuity according to rules.

A higher start in the grade may be considered for specially qualified candidates.

Qualifications are relaxable in exceptional cases.

Due consideration will be given to candidates belonging to SC/ST for the posts of Lecturers/Associate Fellows.

Appointments to the posts of Senior Fellows, Fellows and Associate Fellows will be made on a contract for one year in the first instance, after which they will be considered for appointment as Readers and Lecturers respectively on the recommendation of the Selection Committee.

Selected candidates will be expected to participate in the teaching and research programmes in other departments also.

Selected candiates will be required to work at Hyderabad or at any of the Regional Centres of the Institute.

Persons appointed against substantive posts will be on probation for one year in the first instance.

The Institute reserves the right to accept late applications in exceptional cases.

Candidates applying from outside India will be exempted from the submission of the application of the prescribed form and the payment of application fee.

Age of retirement : 60 years

Instructions

1. Separate applications should be made for each post enclosing **seven copies of the list of papers published** with full particulars along with **one copy of each publication**.

2. Candidates not fund suitable by the Selection Committee for the post they have applied for may be considered for a lower cadre post.

3. Candidates called for interview from a place outside Hyderabad will be paid a contribution towards their travelling expenses at the rate of second class railway fare, including sleeper coach charges from the place of their work or residence, whichever is nearer, by the shortest route, subject to the production of a railway receipt.

4. A copy of the application form can be had from the Registrar, Central Institute of English and Foreign Languages, Hyderabad-500 007, on payment of Rs. 2/- in person or by postal order payable to "Director-CIEEL" and by sending a self addressed envelope (10x23) duly stamped and indicating the name of the post applied for.

I.V. Chalapati Rao
REGISTRAR

UNIVERSITY OF SAUGAR

SAGAR 470 003

No. Estt./R/2/82 Dated the 9th November, 1982

Applications in the prescribed form are invited for the following posts so as to reach the undersigned on or before **31st December, 1982.**

Pay Scales :			
	Professor	Rs. 1500-2500	With D.A. and P.F. benefits according to Univ. rules.
	Reader	Rs. 1200-1900	
	Lecturer/ Research Associate.	Rs. 700-1600	

Subjects	*No. of Posts*
	PROFESSORS
Sanskrit	One
Linguistics	One
A.I.H. Culture & Archaeology (Tagore Chair)	One
Political Science	One
Psychology	One
Chemistry	Two (One Prof. in Physical/Inorganic/Analytical Chemistry
	READERS
Library Science	One
Political Science	One
Economics	One
Physics	One
Geography	One
Botany	One
Zoology	One
	LECTURERS
English	One
Hindi	Three + One*
Urdu/Persian	One
Marathi	One
History	One*
Economics	One
Political Science	One
Physics	Two + One*
Chemistry	Two + One
Mathematics	One
Criminology & For. Science	One
Yogic Studies	One
Applied Geology (Res. Associate)	One
Law	One

* Appointment temporary against lien/leave vacancies. On termination of the lien, the appointees will be entitled for permanent appointment according to rules.

UNIVERSITY COLLEGE OF EDUCATION

	No. of Posts	*Scale of Pay*	
College Professor	One	680-1150	With D.A. and P.F. benefits according to Univ. rules.
Lecturers	Four	400-800	
Instructor (Craft)	One	246-460	

ADMINISTRATIVE POSTS

Dean, Students Welfare	One	700-1250	With D.A. and P.F. benefits according to Univ. rules.
Medical Officer/Health Officer	One	425-900	
Director of Physical Education.	One	400-950	

Note : The scales of Pay for the posts in the University College of Education and administrative posts are likely to be revised and the qualifications for these posts will be applicable as revised/modified by Govt./University.

Application forms along with details of qualifications and other conditions etc. can be obtained from the University Office on requisition. It should be accompanied by a self-addressed stamped envelope with a crossed Indian Postal Order of Rs. Five payable to the Registrar, University of Saugar, Sagar.

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REGISTRAR

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RAVISHANKAR UNIVERSITY

RAIPUR

Employment Notification No. 3/82

Last date of Application : 10-1-1983

Applications are invited for appointment to the following posts in the University Teaching Departments :—

S. No.	Name of Posts	No. of posts	Specialisation
I.	**Readers**		
(i)	Physics	One	
(ii)	Chemistry	One	
(iii)	Bio-Science	One	Environmental Science
(iv)	Statistics	One	
(v)	Economics	One	Industrial Economics
II.	**Lecturer**		
(i)	Bio-Science	One	Parasitology Immunology Developmental Biology/Animal Physiology

2. **Scales of Pay**

Reader : Rs. 1200-50-1300-60-1900.

Lecturer : Rs. 700-40-1100-50-1600.

3. **Qualifications for the post of Reader (as on 10-1-83)**

Good academic record with a doctoral degree of equivalent published work. Evidence of being actively engaged in :—

(i) research or

(ii) innovation in teaching methods, or

(iii) production of teaching materials

About five years experience of teaching and or research provided that atleast three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding research work.

4. **Qualifications for the post of Lecturer (as on 10-1-83)**

(a) A Doctor's degree or research work of an equally high standard, and

(b) Consistently good academic record with 1st or high 2nd class (B) in seven point scale) Masters degree in a relevant subject or an equivalent degree of a foreign university. Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of candidate as evident either from his thesis or from his published work is of very high standard it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

(i) For the purpose of determination high second class, the mid-point between the minimum percentage of marks fixed by a University for award of second division and first division may be taken.

(ii) For determining consistently good academic record a candidate should either have an average 55% of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% marks in each of the two examinations separately.

5. The requirement regarding minimum percentage of marks shall be relaxed upto 5% in the case of scheduled castes scheduled tribe candidates. Fifteen percent of the posts in each department are reserved for the candidates belonging to scheduled castes and 18% for scheduled tribes candidates. If no candidate belonging to scheduled caste tribes is found suitable for appointment candidate belonging to the general category will be considered.

6. **General**

(i) Contributory provident fund, dearness and other allowances and benefits are available as per University Rules. Higher initial salary in the scale may be considered in case of exceptionally qualified and deserving candidates (ii) Candidates in employment must submit their applications through proper channel. Applicants called for interview will have to bear their own expenses. (iii) The University reserves the right not to fill any post without assigning any reason therefor. (iv) Applications should be submitted in seven copies on prescribed form. (v) Request for the prescribed application forms should be made to the Registrar by sending **Rs. 5/-** in cash or by crossed bank-draft, together with a self addressed envelope of 23 x 11 cm. size bearing postal stamp worth **Rs 1.95 ps** for recorded delivery

(vi) Application must reach the Registrar's office on or before **10-1-83.**

Dr. H.N. Shukla
REGISTRAR

ALIGARH MUSLIM UNIVERSITY

ALIGARH

Advertisement No. 12/82-83

Applications, on the prescribed form, are invited for the following post :

1. **Professor of Anatomy, Department of Anatomy (Permanent)**

Scale of Pay : **Rs 1500-60-1800-100-2000-125/2-2500 plus allowances.**

Qualifications

I. **Essential**

(i) MBBS or equivalent qualification recognised by M.C.I.

(ii) M.S. (Anatomy) M.Sc. (Anatomy) Ph.D (Medical Anatomy) D.Sc. (Medical Anatomy)

Other equivalent qualifications recognised by Medical Council of India.

Teaching Research Experience

As Reader in Anatomy for 4 years in a Medical College.

II. **Desirable**

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- Extension and Continuing Education
- Enlarging Scope of Adult Education
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IN THIS ISSUE

Agitations in Universities 743
Enlarging Scope of Adult Education 745

Campus News

Indian Philosophical Congress Meets 747
Steps to streamline examination work in Maharashtra 747
Foundation course lectures at Dharwad 748
Seminar on library resources at OU 749
Uniform syllabi for varsities in Punjab 749
School of Philosophy at Kanchivaram 750

Agriculture

Agri-business management training course 751
New technique for bio-gas production 751
Mineral analysis equipment at HAU 752

News from Abroad

Bio-chemistry of plant hormones studied at Australia 752
Research in Progress 753
Theses of the Month 754
Additions to AIU Library 757
Classified Advertisements 759

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Editor : M.S. Ramamurthy

Extension and Continuing Education in Universities

N. Venkataiah*
K. Jayachandrama Naidu**

Besides teaching, training and research, the extension and continuing education has become another dimension of the universities. Hitherto, higher education has directed its educational functions to assist people by obtaining information useful to them. Over the time this function has crystallised into an emphasis on formal degrees, presumed to certify possession of certain types of knowledge and skills. Since possession of degrees is often a requirement for desirable jobs, a major function of higher education has become the certification of intellectual and vocational competencies. Universities thus serve as the primary training ground for professions devoting substantial portions of their budgets towards this end.

Since priorities in the universities have been the development of the intellectual and potential of the young and research and training of professional, extension and continuing education programmes have been given little fiscal or other support. However, with changing economic conditions and changing demands on people's skills and knowledge, educational priorities might begin to be shifted from primary emphasis on the young to offering learning opportunities for people of all ages. A number of universities are beginning to recognise this.

The following are the main objectives of the universities in conducting extension programmes:

1. To provide a setting for evolving new models of community service which are consistent with the teaching and research functions of the university.
2. To provide a field research laboratory which could add significant knowledge about community functioning and problem solving while serving as a student training centre.
3. To provide a cross display programme in which participants of the extension programme could work cooperatively with community people.
4. To provide a setting for life long learning opportunities which are responsible to existing community concerns and needs.
5. To have a wide range of university expertise available to a specific community at minimal cost.
6. To permit planning for community improvement and problem solving in a politically neutral context.

**Reader and **Research Scholar, Department of Education, S.V. University, Tirupati.*

Extension Work

It is most important that extension personnel should teach people to recognise their problems, to find the root cause of such problems and how to solve these problems as far as possible with their own resources. It is for these purposes that community surveys or enquiries should be undertaken while extension programmes are prepared. A study of survey of conditions in the community is undertaken to ascertain the existing state of affairs since it is essential that any plan for improvement is based on facts instead of ideas. A long range programme of extension activities must be carefully prepared in consultation with the people in the community, in accordance with their wishes and within the available resources of manpower and money.

Extension should not be considered as a form of charity on the part of the university in giving something for nothing. People may have no money to support a programme but they must be willing to give their time and their energy for the good of the community. The extension work must not be forced on the people. The people must learn to feel the need and ask for the help of extension programme in reaching a solution to their problems. The people must take part in every stage of extension work. Only by this means can they be thought to solve their own problems. Progress in extension largely depends on the training and effectiveness of local leaders.

Extension personnel should have the background of the technology on the one hand and on the other they have to deal with the behavioural problems of human beings which demand a comprehensive background of the behavioural sciences in addition to sound information of extension education. One who is not trained in the subject matter of extension education, would find it extremely difficult to locate and identify the felt needs of the people, involvement and get their active cooperation and participation in arriving at rational decisions.

Community people should have an active and significant role in the extension programmes. Such programmes will not be effective unless people think that they are relevant and useful to them and unless they have some sense of ownership of the programme content and the learning process. A substantial portion of extension programmes of the universities should take place in existing settings in the community schools, colleges, town halls, public libraries or other buildings. People often see the university as beyond their reach. This view can be changed only if the university can come into local communities and establish relationships which permit mutually understandable discourse.

Continuing Education

Education is a life long process and it does not stop with schooling or with the university education. Even such people who obtain high level of advanced education have to refresh their knowledge in order to adjust to the growing complexities of life and the modern society. The professional efficiency of the people working in different occupations could be improved through the continuing education programmes. The universities can develop meaningful programmes of continuing education and can throw open their doors to provide such programmes which would benefit such of those who are desirous of receiving education. The process of continuing education can widen the interest of the educated persons in a variety of ways in general and promote the cause of adult education in particular.

Continuing education covers the educational needs of adults which are not normally met in the formal school or college setting. Continuing education is more advantageous in the sense that it enhances professionalisation within the folds of a university as an extension function and also as an academic discipline. There is at present confusion among the university managements whether to treat continuing education as an academic department or extension. As mentioned very clearly in "the Revised Guidelines of Programme of Adult and Continuing Education and Extension through Universities and Colleges" prepared by the University Grants Commission, continuing education can most easily be adopted as an extension function in any institution of higher learning. The U.G.C. has attached very high priority to the important role that the universities and colleges could play in developing extension and continuing education programmes. The idea mooted to make extension and continuing education as an integral part of the working of universities is quite welcome. The Indian universities have to accept this new dimension of education wholeheartedly and with complete conviction. It must be noted for several years only a negligible amount of sporadic activity has gone on in extension and continuing education. But it has yet to become continuous and systematic.

Every university should start a centre/department of extension and continuing education in order to contribute the knowledge and skills required by the community to cope up with accelerating changes in physical, social and economic conditions. ☐

Agitations in the Universities

D.P. Verma*

Gandhiji had said : "In the midst of darkness light exists, in the midst of untruth, truth exists". Perhaps this streak of 'light' and 'truth' continues helping us to survive in spite of the fact that in almost all important aspects of our activities, which have a bearing on the quality of social life as such, things are heading towards a precipitous fall. Our universities and colleges, instead of being 'areas of light' are tending more and *more to be 'areas of darkness'. So much has been said* and written about the role of higher educational institutions in preparing the society for meaningful social change and in bringing about national reconstruction, and so meagre has been the contribution of the universities and the colleges in this direction that sometimes the very worthwhileness of what is being done in these institutions is being questioned and perhaps rightly so.

One reads with lot of dismay and distress the disarray of even ordinary and routine work of our campuses. These days the focus is mostly on demands—some, of course, genuine any others just imaginary or something that has hardly any relevance to the obligations that we are expected to fulfil. With the revision of pay-scales of the university and college teachers some six years back, more of discontentment has spread in the universities. The revised pay-scales provided hardly any satisfaction to the faculty because of certain stipulations; some two or three years were taken in fighting for the removal of those stipulations like payment for examination and evaluation work etc. Then the 'struggle' commenced for the grant of the pay-scales of Lecturers to many other categories of staff members on the teaching and research sides such as Research Assistants, Teaching Assistants, Coaches and the like. The seeds of discontentment were inherent in the original scheme of revision of pay-scales as it appears that it was finalised and put into effect without giving full consideration to its effects on those segments of the academic community which were left 'un-covered'. Yet another major mistake that was committed by the then policy-framers in this regard was the de-linking of the pay-scales of the members of the faculty and the members of the administrative staff and ending the parity that had obtained on the two sides in all the important universities for decades together. This delinking has brought in a certain measure of instability and has generated unnecessary bickerings between the two important sections of the university community. Nothing at all has been gained by separating the pay-scales of the senior administrative staff from that of the faculty. By slashing the pay-scales at the maximum stage by Rs. 200 or Rs. 300 in the case of Administrative Officers in the universities hardly any savings have accrued to make the universities financially viable. On the other hand, something substantial has been lost — the goodwill between the two sides has been thrown to the winds by this decision. And now whereas under considerable pressure, the Government have announced that D.P.Es. and Librarians in the colleges, with lesser qualifications and pay-scales will be placed in the revised pay-scales of the Lecturers, no thought is being bestowed on removing the anomalies in the pay structure of the *Administrative Officers*, *notwithstanding the fact that* the matter has been considered and some positive recommendations had been made by the Standing Committee of the Association of Indian Universities in August, 1979.

Wrong and short-sighted policy decisions have led to the deterioration in the conditions obtaining in our universities and colleges. An atmosphere of discontentment and disharmony has been generated and it has led to a paralysis of meaningful work in many a university. This is amply testified by a fact that during the last four to five years, one did not find the name of any faculty member of the universities in the region to the north of Delhi, in the lists of those who had won national awards for their accomplishments and researches in various science subjects. This was bemoaned only a couple of months back by no less a person than Prof. Nurul Hasan while presenting the awards at a function held under the aegis of C.S.I.R. of which he is the Vice-Chairman. However, no soul seemed to have stirred in any of these universities, where the preoccupation of the faculty, the students and the non-teaching staff primarily seems to be to generate demands—and to launch agitations in support of them. "*Bring no change*" and "*Make things easier*", this is what in brief the students desire. 'Give us more' and 'talk of no accountability whatsoever' kindles the path of the faculty. 'Slipping work for hours' and 'making ever widening circle of demands', projected with the use of filthiest language is the hallmark of what a sizeable number of the members of the administrative staff do. And above all, the governing entities in the universities chant : "They can do no wrong" and "Their *order* cannot change yielding place to new". At least some of these 'entrenched entities' reap rich harvests by sheer sychophancy; some masquerade themselves as the saviours of the university system, and in doing so they almost with impunity cajole and coax the 'lesser-beings' to carry out all that they desire, even if it means clear risk to their jobs etc. If the basic values of the university system as such are to be preserved and strengthened so that academic life could flourish on sound basis, then the wings of these so-called 'masters', who have dug themselves in power and have made themselves impregnable because of 'groups' and 'blocks' formed by them, need to be adequately clipped by long overdue legislative measures, without, of course, trampling on whatever semblance of university autonomy remains.

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* *Registrar, Panjab University, Chandigarh.*

Agitations by teachers, and more so by the ministerial employees have become a frequent phenomenon in many universities, particularly in the northern region. This is an unhappy development to say the least. There is an urgent need to devise ways and means so that the genuine grievances and needs of teachers and employees which can be settled and met within the university framework are settled by mutual consultations and discussions and the need to resort to agitations, 'dharnas' and strikes etc. is obliterated as far as possible. If the universities fail to devise any such mechanism, then the conclusion would be inevitable that either they lack the imaginative ability to do so, or they are not seriously interested in addressing themselves to the task of eradicating this recurring affliction and merely believe in the policy of drift, living from moment to moment. The policy-makers should not just be mere spectators watching helplessly the machinations of some outside forces for motivatively disturbing the even tenor of life on the campuses.

It seems that the sharp upward rise in the curve of demands in our institutions is going to be a continuous phenomenon. Unfortunately the curve of responsibilities and duties has taken a steep downward course and there hardly appears to be any way to check this calamitous decline. However, for meeting the legitimate general grievances and needs of the various segments of staff, a well-established mechanism on the pattern of Whitley Councils, Staff Councils, or the Joint Consultative bodies as obtaining in the Central Government ministries need to be established in the universities in which there is proper and adequate involvement of the university authorities and the teachers or the other employees, as the case may be. These Staff Councils could provide the machinery for dealing with the genuine grievances as also evolving ways and means to secure increased efficiency in job performance. The entire matter of the nature, specific objects, functions, scope and powers of these consultative bodies could be carefully considered and laid down.

An experiment in this direction should be made even though in the beginning, the scope of the experiment may be limited. Nothing innovative is being suggested. What has been tried elsewhere and has yielded somewhat satisfactory results could as well be tried in our universities. What is required is the will and determination to do our duties to our best capacities by the institutions we serve, and whenever some problems are projected, these are settled by mutual understanding and discussions and not through the methods of taking to the street. If sanity cannot be found in the universities, where else has one to go to find it ?

As stated above, the composition and functions of a Joint Consultative Committee—one for the faculty and the other for the non-teaching staff could well be laid down after due deliberations. That would hardly pose any difficulties. The basic thing is to accept the setting up of such a machinery in principle and making of a reolve on the part of the staff members of different categories that all matters concerning their general interests and conditions of service etc. would be referred to such a body, in which decisions would be taken after mutual discussions and in proper spirit. Objective and meaningful discussions could help resolve many problems; debasing slogans and abuses only accentuate and worsen the matters. The climate in many a university is being polluted by wrong means usually adopted by agitating employees. In some universities the faculty has maintained its dignity and decorum, when agitating for its demands etc. But in some others, they too had fallen victims to the type of behaviour which, to say the least, brought them no credit whatsoever. The non-teaching employees in some of the universities have wittingly or unwittingly have fallen in the net of one or the other political party which has its own axe to grind. Tall demands are projected and cheap means and tactics are used by the agitating employees at the behest of the political organisations which have gained a foothold among these persons and exploit them primarily for their own purposes. The pollution of atmosphere brought about by the use of uncivilised and vulgar speeches, abuses and slogans is not only harmful to the persons indulging in them but what really causes anguish is that such pollution sooner than later would ruin the climate in the families of such persons and their children would certainly suffer from the deleterious effects of such undesirable activities.

Serious and sustained attempts are being made at higher levels to bring about changes in the syllabi, courses of reading, induction of qualitative improvement in instructional programmes, examination reforms and all that. The University Grants Commission and the Association of Indian Universities have in right earnest addressed themselves to these very important and vital tasks. Some effort is also needed to cleanse the foul atmosphere created by agitations in some of the universities on one pretext or the other, by one segment of the staff or the other. A clear direction needs to be provided so that our campuses do not witness these occasional convulsions. This matter requires careful thought at higher policy making levels and may be some machanism or device is evolved to consider the genuine and general grievances of the faculty and other employees, and there is no chance etc. left for launching any agitations that cause so much of disruption of important and vital work for which the universities were established. ☐

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Enlarging Scope of Adult Education

B.B. Mohanty

The National Board of Adult Education has been reconstituted. One of the major recommendations of the National Adult Education Programme's Review Committee, whose report has been released by the Government, was to reconstitute the Board as an autonomous agency "with funds, responsibility and authority to promote, develop and implement" the adult education programme within the policy framework. It appears that the reconstituted Board will continue to be an advisory body. The Committee had also recommended that the State Boards of Adult Education should be made autonomous, but now this is not likely.

After a year of launching the NAEP in October 1978, a nine-member committee under the chairmanship of Professor D.S. Kothari was appointed to review it. It submitted its report in April 1980. The Government recently decided to implement the programme keeping in view the recommendations of the committee. Meanwhile, adult education has been included in the 20-point economic programme of the Prime Minister. It has also been included as an essential component of the basic minimum needs programme for the Sixth Five Year Plan.

Central Agency

The Adult Education Programme, as it is to be called, is a priority programme. The review committee had gone to the extent of suggesting that funds provided in the Central Budget for adult education should be placed at the disposal of the National Board of Adult Education which should also have the authority to raise funds from other sources and to give grants. It was recommended that the NBAE Chairman should be the Education Minister, and there should be a whole-time vice-chairman with a small executive committee and a secretariat for day-to-day administration. The Directorate of Adult Education was supposed to be the technical wing of the Board. Similar organizations in the States were also stipulated.

These recommendations have certain merits because for a massive adult education programme there should be a central agency whose sole responsibility would be to plan, direct, organize and oversee the programme in the country. Therefore, it is not too late for the Government to reconsider these recommendations to make NBAE a truly autonomous organization.

Another important recommendation of the committee is about the duration of the programme. The present ten-month adult education course, followed by some provision for follow-up activities, according to the committee, is inadequate "for an effective and purposeful adult education programme specially if its content is to be wider and is to lead to tangible development". Therefore, a three-year programme has been recommended. However, the three-year period could be divided into three yearly stages of 300 to 350 hours, 150 hours and 100 hours respectively.

The first stage of 300-350 hours is for basic literacy, awareness and functional programmes relating to the vocations of the learners. The second stage of 150 hours, to be spread over a year, is mainly to reinforce literacy skills and to improve vocational skills. The participants are expected to form discussion groups and get themselves organized for development. The third stage of 100 hours, to be operated during one year, is to achieve a reasonable degree of self-reliance in lileracy and functionality in the learners and to strengthen their ability to identify, discuss and solve the pressing problems facing them.

Although the committee has not specifically used the terms "post-literacy and follow-up" while identifying objectives and programmes for the second and third stages, it is logical to presume that the second and third stages are meant for post-literacy and follow up programmes. But in practice, in particular in the context of life-long education, it is impossible for any distinction to exist between the second and third stages. What happens to the learners after the third stage ? If they are supposed to organize their own learning activities beyond the third stage, what is the role of the implementing agency ? What about supply of books and other learning material ? In a UNESCO Regional Literacy Workshop, held in Udaipur in 1979, Professor D.S. Kothari had said that learning activities for adult learners in India are to be organized in short-duration successive stages as a continuous process so that the learner acquires confidence at every stage of this success, and the sooner he sees his achievements the better for him to sustain his learning.

The Committee on Post-literacy and Follow-up, appointed by the NBAE in 1979 under the chirmanship of the late J.P. Naik, had given considerable thought to the various aspects of the subject. It had righly suggested that the objectives of the adult education programme would not be fulfilled without the creation of a continuous learning environment in each community and without providing opportunities to every newly literate person to realize his or her potential fully so as to participate in development. It had also suggested six operational models. J.P. Naik was a member of the NAEP Review Committee and when it was reviewing the programme, some of the models were being operated in some parts of the country. It is, therefore, surprising that no mention of any of the models has been made in the review committee's report.

In the National Seminar on Strategies for Post-literacy, Follow-up and Continuing Education, recently held in Hyderabad under the joint auspices of the Central Directorate of Adult Education and the Osmania University State Resources Centre for Audlt Education, this question came up for discussion. A background paper on the rationale of the seminar said: 'The acceptance of the three year package model suggested by the Kothari Committee, at a time when the models suggested by the Naik Committee were being operationalized, created a serious dilemma for the implementors of second stage of post-literacy. The study of these two models, namely, the ten-month programme followed by the Naik Committee models and the three-year package model, reveals that there is some basic difference between these two approaches and it may be difficult to evolve an approach combining these two. In fact, it has created some confusion in the minds of those who are now working in the field of aduilt education."

The genesis of such confusion lies in the Kothari Committee's recommendations on the three year duration of the adult education programme. It has suggested a three-stage strategy, each stage devoting *less time than the preceding one.* For example, the second stage of 150 hours means about 30 minutes every day for post literacy activities. When one of the models of the Naik Committee report is applied for the second stage, it is found that the organizational and staffing patterns of the model are bound to be underutilized.

The Hyderabad seminar examined the whole issue with an open mind. It was established, after a lot of deliberations both in the group and plenary sessions, *that there is no basic contradiction in principle* between the recommendations of the Kothari and Naik Committees. The post literacy and continuing education activities cannot be organized during definite time slots. Moreover the duration of the three stages in the declining arithmetic order was not subject to logic; rather it should have been the other way round, *i.e. in the increasing arithmetic order.* One of the group reports of the seminar, which was subsequently adopted, says that the models suggested by the Naik Committee can be applied within the three year package suggested by the Kothari Committee. The seminar further recommended that every adult education centre should be co-terminus with a post literacy centre, which should be organized as a permanent learning centre.

Media Councils

Another vital recommendation of the Kothari Committee is that the National Board of Adult Education should have a National Media Council and the State Boards State Media Councils. These councils should organize *inter media cooperation, training* programmes, research projects and support experimental programmes.

Communication support for our adult education programme has been rather weak. Even after the inclusion of adult education in the 20-point economic programme one does not hear spot advertisements relating to adult education in A.I.R.'s primary channel. Regular weekly adult education broadcasts over A.I.R. stations need improvement. Cuttack station is now broadcasting the weekly programme at 10 p.m. every Friday, and what happens at the receiving and is anybody's guess. Preparation of adult education software is one area where a lot of work remains to be done. Adult education, if adequately supported by communication, will surely accelerate communication itself. After all, adult education is applied communication. □

[*Courtesy* : The Statesman]

INDIAN STATISTICAL INSTITUTE

203, Barrackpore Trunk Road
Calcutta-700035 (INDIA)

Summer Course in Mathematical Analysis and Probability

The Indian Statistical Institute proposes to conduct a Summer School at the Mysore University campus during June 8—July 9, 1983. The Summer School is intended primarily for young university/college teachers, research scholars and bright M.A./M.Sc. students in Mathematics/Statistics/Physics. The topics to be covered in the course are :

1. **Fourier analysis on R^n** ;
2. **Basic functional analysis** ;
3. **Ergodic theory; and**
4. **Wiener integrals.**

The courses will start from an elementary level but will progress fast.

Interested persons may apply to:

In-Charge
'Summer School Programme 1983'
Stat-Math. Division
Indian Statistical Institute
203 B. T. Road, Calcutta 700 035

The deadline for applications is March 15, 1983. Applicants are required to enclose their biodata (with current research interests) and two letters of recommendations from their teachers/supervisors/senior colleagues. Round trip second class railway fare and free hostel accommodation (including meals) will be provided for the selected participants.

Campus News

Indian Philosophical Congress Meets

(From Our Correspondent)

While inaugurating the 57th Session of the Indian Philosophical Congress at the Panjab University recently, Prof. K.S. Murti, Chairman, Executive Council, Indian Philosophical Congress said that philosophical studies should be correlated with science, technology and practical life. The philosopher should not feel alienated from society but should identify with it.

He quoted Swami Ram Tirath, a modern Vedantist, who said Practical Vedanta is to feel one's identity with the whole of India and with all the communities and then with the whole of humanity and to cultivate universal love.

He stressed that national dharma must be placed higher than personal dharma. He stressed that philosophers should formulate a theory to inspire the nation to realise the values of unity, integrity and self-reliance.

Guru Nanak Dev stressed the role of harmony and tolerance, Sri Aurobindo said that a people without vision perish. Prof. Murti quoted some of the great Indian philosopher like Abhinava Gupta, Haribhadra, Mahibhadra, Kshemaraya to show that truth is one. Even the great Indo-muslim saint Shaikh Nizam-ud-din Aulya observed that every people had its path of righteousness. But, he said, no one has taught with greater force than the Sikh Gurus that all men are equal. The great Guru Gobind Singh declared that "all men have the same form, all men have the same soul". The Upanishads and the Gita declared, thousands of years ago, that the same Self was in all beings. Prof. Murti pleaded that Indian Philosophy should go beyond the systems and keep contact with the social situation and with science and technology.

Prof. S.K. Chattopadhyaya, General President of the Congress this year in his presidential address talked about the "Ego" as the perennial problem of Philosophy. He said the "I" has mistakenly been taken as a thinking substance while the "I" is merely an individuated identity-sense, and its so-called certainty is not absolute. He said that while the ego has an urge for building itself, there is no individual self. The egos may be looked upon as individuated conscious foci through which reality is objectively represented.

The Chairman of the Department of Philosophy, Dr. Rekha Jhanji, welcomed the delegates. She gave a brief review of the department and the important work it had done in the field of Social Philosophy, Philosophy of Culture and Aesthetics.

The Department had already brought out some publications on "Philosophy of Culture", and "Nature of Violence". Other projects like "Philosophy of Religion", "Philosophy of Social Change," and "Philosophy and the Arts" were in the Press.

Dr. Sneh Pandit proposed a vote of thanks.

The afternoon session was addressed by Dr. K.N. Tewari who spoke on "Logic and Scientific Method" Dr. Cranaiha spoke on "Metaphysics", Dr. J.J. Shukla read a paper on "Religion", Dr. B.P. Sinha on "History of Philosophy" and Dr. Bhuvan Chandel read a paper on "Ethics and Social Philosophy".

The Congress is conducting symposia on "Speech Acts", and "Philosophy and Social Change" and arranging lectures on Vedanta, Buddhism and Jainism.

Steps to streamline examination work in Maharashtra

At a special meeting of Vice-Chancellors of universities in the State, called recently by Maharashtra Governor I.H. Latif in his capacity as Chancellor, it was decided to appoint only senior and experienced teachers to set question papers as one of the short-term measures to streamline the examination system, it is reported.

This measure was expected to ensure that there would be no ambiguity in the questions and that the paper would be within the syllabi and was capable of being answered by the students in the time given.

Among other short-term measures taken are : increasing the number of short answer questions so as to reduce the burden on both the students and the examiners, preparing a detailed marking scheme (by senior teachers) to achieve some uniformity in evaluation of the papers, giving only a limited number of papers to each examiner and to try and deliver them by messengers as far as possible to reduce the delay in despatch.

It has also been decided to carry out a centralised or semi-centralised assessment of certain selected examinations to reduce the delay.

Each university will prepare a time-table of its pre and post examination work in advance and a co-ordinator will monitor its timely and effective implementation.

In the case of Bombay University, "which has problems of its own created by its large size and numbers" a study was being undertaken to streamline the examination system.

Another important decision taken at the meeting was to deal firmly with all types of malpractices in the university, especially examination work and maintain an effective check on them.

According to the Chancellor, the success of these and other long-term measures will depend upon the teachers and university employees, "the two important segments of the university community". He has appealed to all the Vice-Chancellors to create "a climate of confidence and trust among the staff, teachers and the university" to ensure their whole hearted support and cooperation in implementing these measures.

Foundation course lectures at Dharwad

(*From Our Correspondent*)

Swami Ranganathananda, President, Ramakrishna Math, Hyderabad, delivered two lectures in the Karnatak University under the Foundation Courses Lectures Series recently.

In his first lecture, "Science, Culture and Education", the Swamiji said that education is not in a happy state today all over the world. We have been learning to *do* and not learning to *be*. Education today is aimed at making man a functionary only whereas he is more than that. This fact is gradually being realized, at least in the West, and quoting Julian Huxley, the Swamiji said that what we are to evolve is a Science of Human Possibilities. That should be the aim of education.

Culture being cumulative experience, man alone is capable of it. Education acquaints a child with its cultural inheritance and it should help the mind to become creative and add to the culture inherited. The swamiji went on to say that Indian culture has given a remarkable primacy to education. Quoting from the Upanishada and the Smritis, he said that knowledge can be acquired only through *Sadhana* — effort, pursuit and endeavour. Defining *Tapas* as concentration of the mind and the sensory energies, he said that *Tapas* is essential for any great achievement. Education helps knowledge mature into wisdom and should become the instrument to unfold human possibilities.

The Swamiji's second lecture, "Youth and Human Destiny" analysed the predicament of the present day youth and envisaged a bright future for them. He said that the youth today is an awakened lot and congratulated them on being capable of possessing plenty of energy. This is certainly an upward movement from the *tamas* to the *rajas* stage. But it has to move further up and reach the *Sattva* stage. It is a happy augury that the modern Indian youth is awakened to a sense of self-respect and dignity, but in the absence of a direction, this awakening could prove destructive. We have come beyond organic evolution, the Swamiji said and are through a process of psycho-social evolution, which is not time bound and which envisages perennial progress. The attitude of the youth should be that of a pioneer—ever on the look out for new vistas and progress, he concluded.

30-day course for foreigners in Tamil University

The Department of Tamil Studies in Foreign Countries, Tamil University, Thanjavur, is conducting a 30-Day Course entitled "An introduction to Tamil Culture", from 18th December to 16th January 1983, for foreigners interested in Tamil studies. The Course comprises three weeks of lectures, seminars, assignments (both reading and writing) and tests. In between there will be a week-long cultural tour covering Madurai, Tirunelveli, Suchindram, Kanniyakumari, Tiruchendur and Rameswaram. On two week-ends there will also be two local tours—one to Tiruchi and the other to Darasuram and Kumbakonam.

The course-material comprising 60 lectures covering different aspects of Tamil Culture has been prepared by scholars from Annamalai, Madras, Madurai and Tamil Universities. The lecture-script writers will also come and deliver lectures and lead discussions. Weekly tests will be conducted and a certificate awarded in the end.

Twenty participants have registered for the Course from the following countries: London (2), South Africa (7), Sri Lanka (1),

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INDIAN NATIONAL SCIENCE ACADEMY

Bahadur Shah Zafar Marg, New Delhi-110002.

Application for financial support to scientists for participation in international scientific conferences abroad during 1983-84.

ANNOUNCEMENT

The Indian National Science Academy (INSA) has invited applications from deserving scientists for extending them partial financial support to participate in important international scientific conferences/symposia abroad. Scientists interested to avail of financial support from the Academy for international conferences to be held during 1983-84 may apply in the prescribed proforma which can be obtained from the Office of the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002.

The Conferences to be supported by INSA fall under three different categories viz. *Category I* : International Conferences sponsored by the International Council of Scientific Unions (ICSU) and its affiliated bodies, hence categorised as ICSU Conferences; *Category II*: International Conferences sponsored by other agencies, hence categorised as Non-ICSU Conferences; *Category III* : Travel fellowship grant to young scientists below the age of 35 years including INSA-COSTED travel fellowship grant.

Candidates selected will be supported fully/partially for their travel cost by INSA or jointly by INSA-COSTED (Committee on Science and Technology in Developing Countries) as may be the case. The applications will be screened once in a quarter during 1983-84.

Further particulars can be had from INSA.

Malasiya (6), Fiji (2) and Mauritius (2).

Seminar on library resources at OU

Inaugurating a three-day National Seminar on Library Resources for Higher Education and Research sponsored by UGC and organised by Osmania University Library recently, Dr Y.S. Rajasekhara Reddy, Minister for Education and Libraries, stressed the need to improve libraries to make them more useful to its users. He said the library movement in our country was still in the initial stages, while the developed countries were using computers and automation for information storage and retrieval.

Prof. Ramesh Mohan, Director of Central Institute of English and Foreign Languages (CIEFL) who presided, described libraries as nerve centres for development and extension of knowledge. He said the faculty and the librarians should encourage the students to fully utilise the library services. He said the UGC realising the important role of libraries was trying to provide adequate resources.

Mr N.B. Inamdar, Librarian and the Seminar Director, welcoming said 50 librarians from 15 States and 43 Universities were participating in the Seminar. He said the seminar will discuss advances in technology, book selection, inter-libary sharing in view of high cost of books, audio-visual aids, managing resources, etc.

NSS free legal aid camp

(From Our Correspondent)

The Chief Justice of Andhra Pradesh High Court, Justice K. Madhava Reddy has emphasized the need for higher financial allocation for free legal aid and advice to the poorer section of the society.

The Chief Justice who was the Chief Guest at the Free-legal Aid and Advice camp organised recently at Narsampet, Warangal District by the Kakatiya University said that Rs 5 lakhs allotted for the programme in the state was not enough and at least Rs 30 lakhs was required to provide the benefit to the large section of people.

This camp was jointly organised by the NSS Unit of the Law College of Kakatiya University and Warangal District Free Legal Aid/Advice to the poor community.

Prof. T. Vasudev, Vice-Chancelor, Kakatiya University said that the NSS Unit of Kakatiya University is evincing keen interest in imparting medical and legal education to the villagers. Further, he emphasized that particularly the law students should conduct door-to-door surveys in the villages to know the legal problems of the poorer sections so that free legal aid could be arranged in all deserving cases. A small booklet prepared in Telugu by the Law College NSS Programme Officer, Sri Vishnu Murthy was released by the Vice-Chancellor on this occasion.

The University NSS Programme Co-ordinator, Dr B. Sreenivasulu said efforts should be made at the village level to minimise petty suits. He also emphasized the need for mobile courts for the villages.

Mr. V.P. Jauhari, District Collector presented a cheque for Rs. 8,000 for rendering legal aid to Scheduled Castes and Tribes beneficiaries.

District Sessions Judge, Mr I. Panduranga Rao expressed that the expansion of the schemes to other places in the District is under way.

Need for change in B.Ed curricula stressed

Dr Bhagat Singh, former Vice-Chancellor of Punjabi University, has pleaded for the inclusion of modern sciences in the curricula for teachers education and make these relevant to Indian condition.

He was inaugurating recently a six-day workshop on revising the prevalent curricula for the Bachelor of Education degree organised by the Department of Teachers' Education, N.C.E.R.T. Delhi, and the Department of Education and Community Services, Punjabi University, at the Senate Hall.

Delegates from Panjab, Guru Nanak Dev, Punjabi, Kurukhetra, Maharshi Dayanad and Jammu and Kashmir Universities participated in the workshop, the original venue for which was in Kashmir.

Prof K.N. Saxena of the Department of Teachers' Education, N.C.E R.T., and Dr Amrit Kaur, Head of the Department of Community Services, Punjabi University, pointed out several weaknesses in B.Ed. curricula.

Uniform syllabi for varsities in Punjab

The Punjab Education Minister Mr. Harcharan Singh Ajnala has called upon teachers and academicians to come forward to create an atmosphere congenial to national integration.

He was presiding over the 13th foundation day function of Guru Nanak Dev University at Amritsar recently.

He said that the syllabi of Guru Nanak Dev University and Punjabi University would be made uniform. The 10+2+3 system would be introduced in Punjab soon.

The Minister also announced that the Punjab Government would give grants equal to U.G.C. grants to the universities.

Speaking on "Higher Education", Dr Satish Chandra former Chairman of the University Grants Commission, said that due to inflation the cost of higher education had gone up.

Earlier, an exhibition of books, manuscripts and paintings was held in the university library.

Children's library and materials research centre at SNDT

(From Our Correspondent)

A unique "Library and Materials Research Centre" for children parents, researchers and those interested in the development of the child's total personality, was opened at the S.N.D.T. Women's University, Sir Vithaldas Vidyavihar, Juhu, Bombay recently. The Library-cum-Centre took shape as a result of a generous donation made by the Smt Jamnabai Govindji Madhavji Smarak Trust. It is located in the Sushilabai M.D. Morarjee Hall of the University's Extension Library. It was formally inaugurated by Smt Sumati Morarjee.

The new Centre is not meant to be just another children's library —its objectives are wider. It will allow parents to participate in ascertaining and developing their children's reading interests. It also aims to help researchers interested in probing the various aspects of the child's development and creativity. It has a plan to collect under one roof all material on the child, and provide information services to those who need them. The interior of the Library-cum-Centre has been so designed as to attract children to come in and read in comfortable, and congenial surroundings.

On the occasion of the inauguration, an exhibition was arranged. The material displayed included books useful to parents, books about 'children and reading', teaching aids (particularly for science education), children's periodicals, and catalogues of children's literature published in India. An annotated bibliography of children's periodicals published in India was on sale.

Sub-committee on noble metals meets at Dharwad

The 15th Meeting of the sub-committee on Noble Metals of the Central Geological Programming Board was hosted by the Department of Studies in Geology, Karnatak University, Dharwad recently. The meeting was presided over by Shri Venkatesh, Deputy Director General, Geological Survey of India, southern circle, Hyderabad and attended by geologists engaged in Gold exploration and exploitation. The committee reviewed the various projects and discussed the future programmes of exploration and exploitation of Gold in our country. The members of the committee had a field excursion to Gadag Gold bearing area to study the Geology of the area. The Faculty members participated both at the meeting and the field excursion.

Books on memorial stones published by Karnatak University

The Institute of Indian Art History, Department of History and Archaeology published *Memorial Stones* being the second in IIAH series in collaboration with South Asia Institute, University of Heidelberg, Germany in Novemeber 1982. The volume treats with a study of the origin, significance and variety of memorial stones, such as hero and *sati* stones and *nisidhis*, which constitute a valuable contemporary source material for history and culture. It is edited by Dr S. Settar and Gunther D. Sontheimer. It contains 34 papers, 175 illustrations and an index.

A school of philosophy at Kanchivaram

The Tamil University is proposing to establish a School of Philosophy at Kanchivaram, better known in the South Asian annals as a seat of learning Philosophy and logic in South India. Kanchivaram was a University Centre like Texila and Nalanda in the North. Frequent visits of Chinese and other foreign pilgrims to this city, and the galaxy of logicians like Dharmakirti and others and the father of Nagarjuna have lived there. The school will have chairs for Vedic Hinduism, Saiva Siddhanta, Vaishnava Sidhanta and later, Budhism and Jainism. Still later, it will have chairs for Islam and Christianity.

About twenty scholars will work there and a specialised library in Philosophy will be organised.

Biological chemists meet at PU

The three-day annual conference of the Society of Biological Chemists was held recently at the Panjab University, Chandigarh. Inaugurating the 51st annual conference Dr. I.C. Pathak, Director of the Post-graduate Institute of Medical Education and Research said that the day was not far off when genetic engineering would be applied to agriculture and for the prevention of diseases in man and animals.

Bio-Chemistry was the frontier science of biology and had played a major role in unfolding the secrets of why, how and what happened at the molecular, cellular and organise levels, he added.

About 700 delegates participated in the three-day conference.

Dr. P.M. Bhargava, Director of the Centre for Cellular and Molecular Biology, Hyderabad, gave a talk on the research being done at his centre for the control of cancer and for identifying cancer-causing agents.

Dr. R.C. Paul, Vice-Chancellor of Panjab University, addressed the delegates. Dr. H.N. Dani, Secretary, Organising Committee of the conference, and Dr. D.V. Vadehra also spoke.

Symposium on high-energy astro physics at Gorakhpur University

Prof. B.V. Srikantan, Director of the Tata Institute of Fundamental Research, Bombay explained the link between astronomy and elementary high energy particle physics and gave details of an experiment being carried on at the Kolar gold mines to detect decay of proteins.

Prof. Srikantan who was inaugurating a symposium on 'high energy astro-physics' and the annual meeting of the Astronomical Society of India recently at Gorakhpur University said that the 'grand unifications theory' would be accepted or rejected on the basis of the decay mechanism of protons. The symposium was organised by the Physics Department in connection with silver jubilee celebrations of the Gorakhpur University.

Prof. J.V. Narlikar was also present on the occasion and delivered two lectures one each on 'Search for intelligent life in the Universe' and 'Extra-galactic Energetic Sources'.

The session concluded with a post-prandial lecture delivered by Prof. J.C. Bhattacharya, Director, Indian Institute of Astro-Physics, Bangalore.

Grant to medical college of AMU

The Jawaharlal Nehru Medical College of the Aligarh Muslim University will soon have one hundred and fifty additional beds, thus raising the total number of beds in the hospital to five hundred. The University has succeeded in obtaining a grant of Rs. 94.34 lakhs from the University Grants Commission.

It is expected that the construction work of the building to provide one hundred and fifty additional beds will start shortly.

Further steps are being taken by the University to increase the number of students in M.B.B.S. course from fifty to one hundred.

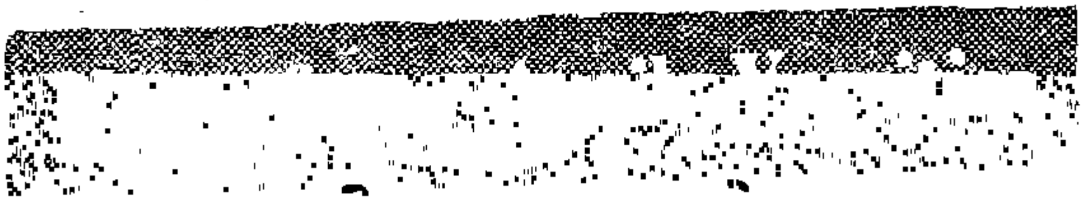
It may be recalled that the Nurses' Training Course has been started from this year.

Historians workshop at Karnatak Varsity

Under the auspices of the Historians Workshop, Dr Dilbagh Singh of Centre for Historical Studies, Jawaharlal Nehru University, New Delhi, read a paper on 'Recent trends in the socio-economic studies of medieval India' recently. Dr. Singh pointed out the shortcomings of existing literature on economic history of medieval India since Akbar and stressed the need for utilising contemporary sourees on the subject.

Earlier while welcoming the Chief Guest Dr S. Settar made references to the 'floating of new ideas' in the discipline and the need for revising our approach to study history.

Presentation of the paper was followed by discussion by members of the faculty.



Agri-business management training course

To meet the developing needs of agriculture in Punjab, the Punjab Agricultural University has started a new course in agri-business management. It is a three-month certificate course to train young boys from rural agricultural families who are matriculates. No fee is to be charged for this programme. Five of the 25 seats will be reserved for defence personnel awaiting release. The course which will be run by the University's Department of Business Management will give training in accounting and finance, marketing and salesmanship, plant protection, farm machinery etc. Guest speakers will also be invited from Banks, fertilizer companies and other such agencies. This will also enable the trainees to handle better the agencies for sale of agricultural inputs like fertilizers, pesticides, seeds and farm machinery.

British parliamentary delegation visits PAU

An eight-member British Parliament delegation led by Mr P.J.M. Thomas visited the Punjab Agricultural University recently to see the work of the University. The members represented the Conservative, Labour and Social Democrat parties. The Vice-Chancellor, Dr Sukhdev Singh, received the delegation and told them about PAU's contribution to agriculture in Panjab. He said that the University was advocating the use of only medium *technology in the Punjab.* Although wheat threshing and water lifting have been complelely mechanised, the demand for labour has, in fact, increased which has to be met from outside the State.

The delegation later visited the Museum of Water & Power Resources of Northern India, the departments of Plant Breeding and Animal Sciences and the Colleges of Agricultural Engineering and Home Science.

Wind mills at HAU

The Commission for Additional Sources of Energy, Govt. of India, has selected the research farm of Haryana Agricultural University (HAU) as a site for installation of three wind mills to promote and utilise wind energy for pumping out water for irrigation and domestic use. The wind mills, supplied by the Institute of Engineering and Rural Technology, have been installed on the three open wells at the research farm.

Two of the wind mills have been fixed over the shallow open wells which have been constructed by the Department of Soils to monitor the data and for stabilising the ground water table.

Mr. M.L. Jain, Prof. & Head, Department of Agricultural Engineering said that wind mills would pump out water without any recurrent expenditure on them. The scientists of the department are engaged in monitroring the performance of data and in conducting the feasibility trials of a wind mill, the total cost of which including installation is approximately Rs. 15,000.

New technique for bio-gas production

The microbiologists of Haryana Agricultural University have evolved a technique by which biogas production can be improved by about 20 to 30%. This was disclosed by Dr P. Tauro, Prof. & Head of the Department of Microbiology. He said that the scientists have found that the major limiting factor in biogas production is low production of acetate acid. We are "conducting researches to improve acetate production either by storing the slurry for 1 or 2 days or by adding to it small quantities of other animal wastes", Dr Tauro said. By this technique biogas production can be improved by 20 to 30%.

New disc drill for sowing wheat

Engineers of Haryana Agricultural University (HAU) have developed a new disc drill for sowing wheat. The drill is fitted with a box partitioned into two sections, one for seeds and other for fertilisers. The box is connected with two pipes through which seeds and fertilizers are poured into the furrows. It can be drawn easily by bullocks because both its wheels are fitted with bushes of good quality. According to Dr. M.L. Jain, Prof. & Head Department of the Argicultural Engineeing, the special feature of the drill is that seeds and fertilisers can be put simultaneously into the soil and thus save time and energy of the farmer. Another special feature of this implement is that it has five plough shares. Dr Jain disclosed that HAU scientists have tried and tested this new disc drill in the fields of the farmers in many successful demonstrations.

Brazilian scientists visit HAU

A four-member Brazilian scientists team which was on a two-day study tour of Haryana Agricultural University (HAU) lauded the cross breeding work being done at the College of Animal Sciences. Besides the animal farm, the Brazilian scientists also visited the artificial insemination complex, duck and trukey farm, the dairy technology laboratory and broiler dressing plant in the college. The delegation which was headed by Dr. Luiz Carlos. Dr. L. Freire, Director of Brazilian National Council of research said that he was much impressed by the research facilities at the university.

The visit was sponsored by EMBRAPA, an agency of Brazilian Ministry of Agriculture.

U.P. MLAs team visits HAU

A 12-member team of the Select Committee of Uttar Pradesh Legislative Council led by Shri Yash Pal Singh, Agricultural Minister, recently visited the Haryana Agricultural University and its research farm. Mr. Yash Pal Singh lauded the work of the university scientists for evolving the sowing techniques for dry land areas. The Minister was particularly appreciative of the clincial facilities provided to animal patients in the college of vety. sciences.

The team from Uttar Pradesh visited the campus for studying the working of the university before presenting the Bill to amend the Uttar Praedsh Krishi Ev am Prodyogik Vishwa Vidyalaya Adhiniyam of 1958.

Mineral analysis equipment at HAU

An X-ray defractometer for mineral analysis in soil has been installed at Haryana Agricultural University (HAU). It was formally inaugurated by Dr. J.S.P. Yadav, Vice-Chancellor in the research laboratory of the department of soil. The equipment, which costs Rs. 10 lacs, would be of much use for scheduling the fertilisers programmes to be adopted by the farmers in different soil zones and for determining the various mineral constituents of different soils.

Dr. Mohinder Singh, Head of the Department said that this equipment would also be useful in framing the minerological soil map of the State which is already under preparation in the Department of Soils.

News from Abroad

Biochemistry of plant hormones studied at Australia

Australian scientists have been studying the biochemistry of plant hormones to try to improve yields and resistance to weather.

Dr Jim Reid, a lecturer in botany at the University of Tasmania in Hobart, and a research team have spent several years working to understand how the dwarfing genes of the gardens pea affect the height of the plant.

Dr Reid said that through the study of the hormone gibberellin, the team was trying to determine how changes in hormone level affected stem length.

"This hormone control is poorly understood in all plants," he said. "By working out the biochemical control in the garden pea we hope to be able to apply the method to other plants."

Dr Reid said that during the so-called "Green Revolution" of the 1960s and 1970s in the United States, many new varieties of plants, particularly wheat and rice, had been developed.

Plants were made more compact, with shorter and thicker stems, which meant they were less prone to topple and lose their seeds. Development of these plants increased the crop yields in some areas of India by about 50 per cent.

"However, these were developed on a trial-and-error basis with plant breeders using known mutations to improve their yields," Dr Reid said. "By knowing how genes in a particular plant operate, a more rational use of such mutants will be possible in the future."

Dr Reid and his team conclusively proved the link between stem length and hormonal levels in the garden pea in March this year. They will present their latest findings at a meeting of the Society for Experimental Biology at the University of Bristol, Britain, in January.

Dr Reid said similar research on maize was being carried out at the University of California in the United States and on rice in Japan.

"Many genes control changes in the height of plants," he said. "We are now looking at other genes in the garden pea to determine their biochemistry." [*Courtesy :* Australian Information Service]

RESEARCH IN PROGRESS

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Sengar, S.S. Study of the H-functions with application in other disciplines. University of Indore. Dr. C.K. Dove, Holkar Science College, Department of Mathematics, University of Indore, Indore.

Physics

1. Lal, Abhay Mohon. Neutron spectra and tritium breeding in fusion reactors. University of Delhi. Dr. L.S. Kothari *and* Dr *Feroz Ahmed, Department of Physics and* Astronomy, University of Delhi, Delhi.

2. Singh, Oinam Nabakishore. Neutron transport problem in reactor. University of Delhi. Dr. L.S. Kothari and Dr. Feroz Ahmed, Department of Physics and Astronomy, University of Delhi, Delhi.

Chemistry

1. Ahuja, Sitaram. Synthesis and reactions of transition metal nitrosyl complexes : Interaction of NO X(xmcl, Br) $NOBr_3$ and N_2O_3 with transition metal salts in the presence of 2,2 bipyoidine and 1, 10 phenauthroline and with their complexes. University of Indore. Dr. W.V. Bhagwat, Department of Chemistry, University of Indore, Indore.

2. Bhale, Ajay. Polarographic studies of aldoximes and ketoximes. University of Indore. Dr. P.T. Malshe, Head, Department of Chemistry, Holkar Science College, Indore.

3. Dua, *Kulbhushan. Organic Chemistry. University of* of Delhi. Dr. R.N. Khanna, Department of Chemistry, University of Delhi, Delhi.

4. Gangrade, Surendra Kumar. Studies of some essential oils. University of Indore. Dr. R.D. Shrivastava, Holkar Science College, Indore.

5. Goyal, Manorama. Physico-chemical investigation of some metal complexes with mannich bases. University of Indore. Dr. K.K. Chaturvedi, Department of Chemistry, Holkar Science College, Indore.

6. Gupta, Sadhna. Coordinative role of alkali and alkaline earth cations in organic reactions : Study of some C-C formation and C-C bond cleavage reactions. University of Indore. Dr. N.S. Poonia, Head, Department of Chemistry, University of Indore, Indore.

7. Haldar, Chandana. On certain aspects of solar energy and solid state problem. University of Delhi. Dr. S. Lahiri, Department of Chemistry, University of Delhi, Delhi.

8. Jain, Rashmi. Scale formation, prediction and control with special reference to amino methylene phesphonic acids. University of Indore. Dr. Kamlakant Chaturvedi, Supervisor, Department of Chemistry, University of Indore, Indore.

9. Prabhakar, Subhash. Chemical and crystallographic studies of some alkali and alkaline earth cation systems. University of Indore. Dr. N.S. Poonia, Head, Department of Chemistry, University of Indore, Indore.

10. Puri, Sandeep. Organic Chemistry. University of Delhi. Dr. R.N. Khanna, Department of Chemistry, University of Delhi, Delhi.

11. Saifee, Maryam. Interaction of organic nucleophiles with alkali and alkaline earth cations-uni and multiple solvent phase investigations. University of Indore. Dr. N S. Poonia, Head, Department of Chemistry, University of Indore, Indore.

12. Shinde, Sanjiv Shanrao. Structural and synthetic studies of the naturally occurring compounds and compounds of potential use in the industry. Shivaji University. Dr. M.M. Salonkhe, Head, Department of Chemistry, Shivaji University, Kolhapur.

13. Singh, Ragini. X-ray absorption studies of few metal complexes. University of Indore. Dr. K.K. Chaturvedi, Department of Chemistry, Holkar Science College, Indore.

14. Usha. Synthetic experiments towards some novel B-Lactose. Panjab University. Dr. S.D. Sharma, Reader, Department of Chemistry, *Panjab University, Chandigarh.*

15. Venu Gopal, B. Chemistry of natural products. University of Delhi. Dr. T.R. Rajagopalan, Department of Chemistry, University of Delhi, Delhi.

Earth Sciences

1. Kumar, Uttaneer Vijaya. Geo-Chemistry of deep sea ocean floor deposits (With reference to manganese nodules). University of Delhi. Dr. G.S. Roonwal, Department of Geology, University of Delhi, Delhi.

2. Paramjit Singh. Microstructure mineralogy and geochemistry of Indian vertebrates with special reference to the Sivalik vertebrates assemblages form the Pinjour formation of Himachal Pradesh and Haryana. Panjab University. Prof. A.K. Prasad, Department of Geology, Panjab University, Chandigarh.

3. Singh, Satendra Pal. Tectonics and petrology. *University of Delhi.* Dr. S. Vardarain and Dr. P.S. Saklani, Department of Geology, University of Delhi, Delhi.

BIOLOGICAL SCIENCES

Microbiology

1. Beri, Harinder Krishan. Characterisation of Mycotoxic principles of selected molds isolated from dried, smoked and cured fish. Panjab University. Prof. D.V. Vadehra and Prof. K.G. Gupta, Department of Microbiology, Panjab University. Chandigarh.

2. Dhawan, Surinder. Biodegradation of cellulose-hemicellulose complex in agricultural wastes. Panjab University. Prof. K.G. Gupta and Prof. D.V. Vadehra and Dr. J.N. Gupta, Dept. of Microbiology, Panjab University, Chandigarh.

3. Tripathi, Krishan Kumar. Studies on the chemotaxis in relation to pathogenicity of certain bacteria. Panjab University. Dr. J. Sokhey. Proof. K.G. Gupta and Prof. D.V. Vadehra, Department of Microbiology. Panjab University, Chandigarh.

4. Vijay Prabha. Endogenous and exogenous factors producing *aggregation and lysis of thrombocytes* Panjab University. Prof. K.G. Gupta and Prof. D. V. Vedehra, Department of Microbiology, Panjab University, Chandigarh.

Botany

1. Kuthiala, Renu. Cytomorphological studies in some Indian orchidaceae. Panjab University. Dr. S.P. Vij, Reader, Department of Botany, Panjab University, Chandigarh.

2. Mishra, Shanti Priya. Some aspects of biological problems of water pollution in river Ib at Brajranagar in Orissa. Sambalpur University. Dr. A.K. Patra, Lecturer in Zoology, G.M. College, Sambalpur.

3. Murumkar, Chandrashekhar Vasantrao. Physiological studies in chickpea. Cicer arietinum L. Shivaji University Dr. P.D. Chavan, Head, Department of Botany, Shivaji University, Kolhapur.

4. Nayak, Basanta Kumar. Phyto-sociology and primary production of a natural grassland *community of Western Orissa.* Sambalpur University. Dr. B.N. Mishra, Professor of Botany, Berhampur University, Berhampur.

5. Rampratap Singh. Seasonal changes in effect of the Iba, Phenols and CA *in footing stem cuttings of some* plant species. Panjab University. Prof. K.K. Nanda and Dr. K.K. Dhir, Department of Botany, University of Panjab, Chandigarh.

6. *Sunita.* Cytotaxonomic studies on the North-West Himalayan bryophytes. Panjab University. Dr. S G. Kumar, Reader, Department of Botany, Panjab University, Chandigarh.

Zoology

1. Gupta, Neerja. Harmonal control of vitellogenesis in catfish, Clarias betrachus. University of Delhi. Dr. D.I. Sunderalal and Dr. S.V. Goswami, Department of Zoology, University of Delhi, Delhi.

2. Nayak, Manorama, Limnological survey of Hirakund reservoir with special reference to water pollution. Sambalpur University. Dr. A.K. . Patra, Lecturer in Zoology, G.M. College, Sambalpur.

3. Tewari, Rita. Cytogenetical studies on some Indian rodents. University of Delhi. Dr. S.R.V. Rao, Department of Zoology, University of Delhi, Delhi.

Medical Sciences

1. Dhar, Sushma. Thymus and bursa of fabricius as factors involved in chemical carcinogenesis using embryo models. Panjab University Prof. P.C. Beohar, Head, Department of Pathology, G.B. Pant Hospital, New Delhi.

2. Harjeet Kaur. *Metrical study of the laryngeal cartilage.* Panjab University. Prof. Inderjeet Dewan, Department of Anatomy, P.G.I., Chandigarh.

Agriculture

1. Rajbir Singh. Studies on the ripening and storage on mango ruits, Mangifera indica L. Kanpur University. Dr. Shivraj Singh Tevtia, Govt. Horticulture and Fruit Tech. Inst., Lucknow.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Ashwani Kumar. A study of units in integral group rings of metacyclic groups. Panjab University.

2. Kadian, Jagdish Singh. Deformation theories for soft ferromagnetic-elastic solids and applications. Kurukshetra University.

3. Sohi, Nirmal Singh. On some problems connected with univalent and multivalent functions Punjabi University.

4. Sunder Singh. applications of Jack's Lemma and the theory of convalution to the study of univalent functions. Punjabi University.

5. Suversha. Reflection and transmission of SH waves in laterally and vertically heterogeneous anisotropic stratum. Kurukshetra University.

6. Tripathi, Umesh Kant. Meijer's G-function of two variables and the polynomial set (Mne* (x,y)). Banaras Hindu University.

7. Velukutty, K.K. Some problems of discrete function theory. University of Cochin.

Statistics

1. Kumar, Yogi Anand. Some aspects of linear and nonlinear estimaters in sample survege. South Gujarat University.

2. Singh, Dinesh Chandra. Some problems of estimation in univariate and bivariate normal distributions under conditional specification. Banaras Hindu University.

Physics

1. Abdul Khadar, M. Crystal growth in gels : A study on methods of improving the existing technique. University of Kerala.

2. Acharya, K. Ravindra. *Crystal structure analysis* of anti-biotic organic compounds by X-ray methods. Bangalore University.

3. Agrawal, Vithal Kumar. Wave instabilities in semiconductor plasmas. Vikram University.

4. Chander Bhan. Measurement of some atomic shell parameters and elemental characterisation usingetype technique. Kurukshetra University.

5. Kurien, K.V. Studies on the growth of molybdate crystals of barium, nickel and lanthanum and investigation on periodic precipitation phenomena. University of Kerala.

6. Nafa Singh. Cathode luminescence and related studies in cas phosphorus. Kurukshetra University.

7. Namjoshi, Pratima. Non-linear interaction of waves in solid state plasmas. Vikram University.

8. Rai, Raghaw Sharan. Studies on structure and imperfections of Si, C crystals by X-ray diffraction and electron microscopic techniques. Banaras Hindu University.

9. Shaikh, Samsur. Lattice dynamics of crystals containing anharmonic impurities. Utkal University.

10. Sharma, Raghbir. Studies on the polarization and depolarization properties of organic molecular solids. Kurukshetra University.

11. Shrivastava, M.K. Luminescence studies of some phosphorus as base and divalent or pentavalent atom as an activator.-University of Jabalpur.

12. Shyam Singh. Study of holography in the field of optical signal processing. University of Indore.

13. Singh, Anand Kumar. Investigations of thin films of some rare earth and transition metal alloys. Banaras Hindu University.

14. Singh, Janardan Prasad. Surface states and allied properties of Si-Sio_2 system. Banaras Hindu University.

15. Varma, Subhash Chander. Study of nuclear interactions in 50 GeV/Cπ-emulsion collision. Kurukshetra University.

16. Yadav, Jagdish Singh. Study of charged particle tracks in SSNTRS. Kurukshetra University.

Chemistry

1. Bhatt, H.M. Studies on metal chelates. Bhavnagar University.

2. Buch, U.H. Studies on metallo organic compounds. Bhavnagar University.

3. Gautam, Prabha. Structural investigation using X-ray diffraction method. Kurukshetra University.

4. Gupta, Anil Kumar. Determination of biologically important substances. University of Jabalpur.

5. Gupta, Bhuvnesh Kumar. Synthesis and physico-chemical studies of platinum (II and IV) complexes. Kurukshetra University.

6. Gupta, Ghanshyam Dass. Heterocyclic compounds synthetic studies on thiazole derivatives. Kurukshetra University.

7. Jain, Kewal Krishan. Heterocyclic compounds bridgehead nitrogen heterocycles with thiazolidinone or thiazole ring. Kurukshetra University.

8. Kapila, Bhupinder. Preparation of some metal-p-tolysulphates and studies of their complexes with lewis bases. Panjab University.

9. Keshav Prasad. Physico-chemical studies on Fe-Cr-O system. Indian School of Mines, Dhanbad.

10. Pandit Rao, V. Studies on Fe (III) complexes of 2-mercaptocarboxylic acids. Bhavnagar University.

11. Pateria, M.G. Iodometric micro determination of certain organic acids. University of Jabalpur.

12. Ray, Subhash Chandra. Studies on the ammoxidation of coaltar and petroleum derived hydrocarbons. Indian School of Mines, Dhanbad.

13. Sayi Sesha, Yadavalli Venkata Sree Krishna. Spectroscopic and kinetic studies on the formation and transformation of some charge transfer complexes. Andhra University.

14. Sukhjinder Singh. Chemistry of some novel fluorosulphates. Panjab University.

Earth Sciences

1. Charan, S. Nirmal. Geology of sulphide ore deposits, Andhra Pradesh. Osmania University.

2. Upadhyaya, Braj Kishore. Structure, stratigraphy and petrology of Gujhandi-Jamun-Daha area of the Bihar mica belt, India. Indian School of Mines, Dhanbad.

Engineering & Technology

1. Bapat, Shridhar Laxman. Thermodynamic properties of dimethyl formaldehyde and refrigerant 22 for vapour absorption refrigeration system. Indian Institute of Technology, Delhi.

2. Fakolawala, Amrutlal Balubhai. Design development and performance investigation of reversed stirling cycle cryogenerator. South Gujarat University.

3. Gupta, Avinash Chander. Hot weather plasters and delay treated concrete. Andhra University.

4. Gupta, Suresh Chandra. On minimization, decomposition and symmetry of switching functions. Banaras Hindu University.

5. Gurlabh Singh. Cracking and its control in mass concrete structures. Kurukshetra University.

6. Jain, Deepak. Studies on gellobiose hydrolysis using immobilized whole cells. Indian Institute of Technology, Delhi.

7. Mahajan, Jagmohan. Development of 'standard FMIND' as an index of perceptual motor load. Indian Institute of Technology, Delhi.

8. Mathur, Pramod Chandra. Entrainment limit of wicked heat pipes. Indian Institute of Technology, Delhi.

9. Parmod Kumar. Sensitivity analysis of multiconductor transmission systems. Indian Institute of Technology, Delhi.

10. Pyare Lal. Dissolution of solid particles in agitated Newtonian and non-Newtonian fluids. Banaras Hindu University.

11. Singh, Tribhuwan Nath. Investigations into the feasibility of inclined slicing of coal seams by equivalent material modelling technique. Banaras Hindu University.

12. Sitarama Sastry, G. Venkata. Electron microscopic investigations of rapidly quenched aluminium alloys. Banaras Hindu University.

BIOLOGICAL SCIENCES

Biology

1. Vashi, Rajendra Kumar Thakorbhai. Impact of fluorine industry on its surrounding area. South Gujarat University.

Biochemistry

1. Bhattacharya, Bijoy Krishna. Cerebral metabolism in developing rat during malnutrition. Banaras Hindu University.

2. Narasimha Rao, S. A study on the effect of sardine oil and oil sardine fish (Sardinella longiceps) on certain aspects of abnormal lipid metabolism. University of Mysore.

3. Singh, Harish Chandra. Biochemical studies on aminobutyric acid and acetylcholine in certain experimental and clinical conditions. Banaras Hindu University.

4. Viswanathan, Nayar, P.G. Studies on the lipid compositions of marine, freshwater and shell fishes. University of Kerala.

5. Yamaja Setty, B.N. Studies on prostaglandins in the insect, Bombyx mori. University of Mysore.

Marine Biology

1. Peter, K.J. Studies on some fish larvae of the Arabian Sea and Bay of Bengal. University of Cochin.

Microbiology

1. Trivedi, Jitendra Prabhushanker. Isolation, identification and partical characterization of a cyanophage. South Gujarat University.

Botany

1. Bhaskar, Meera S. Cytological and biochemical studies on the sterility of *Chlorophytum* species. University of Kerala.

2. Gupta, Surendra Kumar. Cytogenetical investigations on some horticultural plants. Banaras Hindu University

3. Kakralia, Om Parkash. Effect of some fungicides on soil microflora and root nodule formation in a legume. Kurukshetra University.

4. Khonglam, Aidrolin. The cytogenetical studies on some weeds of Meghalaya. North Eastern Hill University.

5. Kushwaha, Satya Prakash Singh. Studies on different jhum (Slash and burn agriculture) patterns and population dynamics of few weedy species. North Eastern Hill University.

6. Mac, Rene Neil A contribution to the flora of Surat District (Kamrej, Vyara, Songadh Uchchhal & Nizar Talukas). South Gujarat University.

7. Mukhiya, Yogendra Kumar. Study of heavy metal toxicity on two crop plants, Fagopyrum esculentum Moench and Hordeum vulgare Linn. *Vikram University.*

8. Roy, Mukti. Studies on phytoplankton periodicity and algal productivity of Bilaspur (M.P.). Ravishankar University.

9. Sethi, Madhab. Histomorphological studies in rice under different environmental stress conditions. Utkal University.

10. Shukla, Baleshwar. Effect of certain growth substances on mint (Mentha arvanisis L. var. Piperascence). Banaras Hindu University.

11. Singh, Harihar Nath. Genetics of antibiotic resistance in the blue-green alga, nostoc muscorum. Banaras Hindu University.

12. Srivastava, Purnima. Studies on the nodulating and non nodulating systems in Cassia absus Linn and Cassia occidentalis Linn. University of Rajasthan.

13. Sur, Prabir Ranjan. Studies on the taxonomy and phytogeography of some genera of tribe Andropogoneae (poaceae) in India. *University of Calcutta.*

14. Thaker, Jayantilal Umiyashanker. Taxonomic survey of cyanophyceae of Surat District. South Gujarat University.

15. Verma, Nagendra Kumar. Studies on the ecology of vesicular arbuscular mycorrhiza of Eupatorium riparium reg. E. adenophorum spreng and osbeckia crinita, common weeds of N.E. Region of India. *North Eastern Hill University.*

Zoology

1. Bhopal, Girish N. Studies on the chemotherapeutic activity of selected antihelminthic drugs against experimental larval ancylostomiasis (Ancylostoma caninum) in mice. Vikram University.

2. Chawhan, Ugam Kumari. Plant insect sterol relationships. Awadhesh Pratap Singh University.

3. Dubey Archana. A comparative account of blood vascular system and haematology in some families of snakes. Banaras Hindu University.

4. Joseph, Leelamma. Karyological studies on some Indian pentatomoid bugs (hemiptera : heteroptera). Panjab University.

5. Kolhe, Neel Prabha. Studies on eosinophil counts and adoptive immune response in swiss albino mice infected with ancylostoma canium larvae. Vikram University.

6. Mishra, Arati. Chromosome organization in Drosophila. Banaras Hindu University.

7. Nagaraja, Laxmi P. Studies on immuno suppression during experimental infection of Nematospirioid dubius in swiss albino mice. Vikram University.

8. Pati, Atanu Kumar. Chronohematological and chronophysiological studies in a reptile : With special reference to environment, Banaras Hindu University.

9. Sanghvi, Pradeep Kumar. Immune response during experimental infection of Nematospirioides dubius in swiss albino mice. Vikram University.

10. Shrivastav, Shashi Bala. Studies on the testes of some hemipterans. University of Jabalpur.

11. Singh, Ashok Kumar, Studies on yield-infestation relationship and economic injury levels of Leucinodes orbonalis (Guen.) in brinjal. Banaras Hindu University.

12. Singh, Om Prakash. Systematics and cytogenetics of *dipteran insects. Banaras Hindu University.*

13. Supakar, Prakash Chandra. Biochemical changes in the chromatin of the brain of developing rats. Banaras Hindu University.

14. Suresh Kumar, T. Analysis of habit and habitat of spotted owlet, Athena brama brama (Temminck, 1821), to evaluate its role in the biological control of rodents and insects of agricultural importance. Osmania University.

15. Vohra, Ashwani. Studies on the morphology of holocrine epidermal specializations with some observations on sloughing cycle in some lizards from Jammu. University of Jammu.

Medical Sciences

1. Batra, Om Prakash. Studies on lithogenic potential of bile under the influence of indigenous drugs. Banaras Hindu University.

Agriculture

1. Har Vir Singh. Studies on insect-pest complex in Brassica campestris L. var brown Sarson. Haryana Agricultural University.

2. Jagdish Singh. Effect of phosphorus rhizobium and phosphobacterin on Kharif legumes and their residual effect on oat fodder. Banaras Hindu University.

3. Keshav Dutt. Studies on apple scab, Venturia inaequalis (Cke) Wint in Himachal Pradesh. Himachal Pradesh Krishi Vishwa Vidyalaya.

4. Patel, Kanubhai Fulabhai. Dynamics of adoption of potato technology in the intensive potato growing District of Gujarat State (Kaira District). Marathwada Agricultural University.

5. Sharma, Girdhari Lal. Studies on the efficiency of herbicides under different methods of rice planting in upland conditions. Banaras Hindu University.

6. Singh, Ashok Kumar. Biological and mutagenic effect of certain insecticides in barley (Hordeum vulgare L.). Banaras Hindu University.

7. Singh, Dina Nath. Effects of N,P,K and spacing on growth, flowering fruiting and fruit quality of muskmelon (Cucumis melo L.). Banaras Hindu University.

8. Singh, Ramesh Kumar. Symbiotic nitrogen fixation and nitrate assimilation in rhizobium. Banaras Hindu University.

9. Singh, Yatindra Nath. Diallel analysis of yield and yield components in bhindi (Abelmoschus esculentus (L) Moench). Banaras Hindu University.

Animal Husbandry

1. Batish, Virender Kumar. Studies on biochemical, physiological and toxigenic characteristics of Enterococci isolated from milk and milk products. Kurukshetra University.

2. Batra, Surinder Kumar. Studies on the levels of prostalgandin F_2 alpha, oestradiol-17 beta and luteinizing hormone in milk and blood plasma of post-partum buffaloes. Kurukshetra University.

3. Bhanja, Sharata Kumar. A study of socio-economics and psychological correlates in organization and functioning of dairy cooperatives. Kurukshetra University.

4. Charta Ram. Impact of processing costs on the investment productivity of public sector milk plants in Haryana. Kurukshetra University.

5. Chittaranjan Prasad. Epidemiological studies on staphylococcal mastitis in buffaloes. Kurukshetra University.

6. Gill, Gurmukh Singh. A study on economic potentials of milk production in the mixed farming enonomy of the Punjab. Kurukshetra University.

7. Gogoi, Heramba Kanta. Standardisation of method of manufacture of gouda cheese from buffaloes milk. Kurukshetra University.

8. Gurcharan Singh. Studies on the levels of some of the reproductive hormones in blood plasma and milk of post-partum buffaloes. Kurukshetra University.

9. Harjeet Kaur. Studies on progesterone levels in blood plasma of normal cycling buffaloes as influenced by different levels of nutrition. Kurukshetra University.

10. Kishore, Mohan. Studies on the red cell carbonic anhydrases in buffalo. Kurukshetra University.

11. Lingam, B. Studies on the effect of the nitrogen and phosphorus levels on growth, yield and quality of fodder, jowar preceded by summer crops. Kurukshetra University.

12. Mallikarjunappa, Sondur. Influence of various roughaged and concentrate ratios on nutrient utilization for growth and milk production in buffaloes. Kurukshetra University.

13. Murali Krishna Murthy, K. Modification of genotype-environment interaction through selection in Tribolium casteneum. Kurukshetra University.

14. Prasad, Sita Ram. Technological studies on the manufacture of butter powder from buffalo milk Kurukshetra University.

15. Pritam Singh. Economics of processing constraints for representative multi-product milk factories in public sector of North-Western India. Kurukshetra University.

16. Rai, Sachchida Nand. Studies on some chemical and biochemical processes to improve the nutritive value of poor quality roughages. Kurukshetra University.

17. Raju, V.V. Rama. Studies on heat injury to coliform bacteria and their recovery in laboratory media. Kurukshetra University.

18. Ram Kumar. Role conflict and its consequences—a study of veterinary assistant surgeons. Kurukshetra University.

19. Sagar Reddy, N. Comparative efficiency of urea and biuret as nitrogen supplement in the ration of growing an milk producing buffaloes. Kurukshetra University.

20. Sarma, Pisipati Anjaneya. Studies on the metabolism of buffalo spermatozoa in cervical mucous. Kurukshetra University.

21. Singh, Sant Kumar. Herd size and its influence on genetic change for economic traits in Sahiwal. Kurukshetra University.

22. Sonawat, H.M. Studies on beta-galactosidase of Kluyveromyces fragilis. Kurukshetra University.

23. Srinivas Reddy, Bonthala. Nitrogen and phosphorus requirements of fodder oats under variable crop sequences. Kurukshetra University.

24. Srivastava, Radhey Mohan. Cattle in culture an economy of tribal Mundas of Bihar. Kurukshetra University.

25. Vijayender Rao, P. Studies on the formation of carbonyl compounds and their significance in milk and milk fat. Kurukshetra University.

ADDITIONS TO AIU LIBRARY

Adams, Raymond S. and Chen, David. *Process of educational innovation: An international perspective*. London, Kogan Page, 1981. xi, 284 p.

Altbach, Philip G. and others. *Comparative education*. New York, Macmillan (c1982) ix, 533 p.

Anand Rao, B. and Ravishankar, S. *Readings in educational technology*. Bombay, Himalaya Publishing House, 1982. xix, 411 p

Anwarul Yaqin. *Constitutional protection of minority educational institutions in India*. Delhi, Deep and Deep (c1982) vii, 350 p.

Darkenwald, Gordon G. and Merriam, Sharan B. *Adult education: Foundations of practice*. New York, Harper and Row (c1982) xii, 260 p.

Gowin, D. Bob. *Educating*. London, Cornell University Press (c1981) 210 p.

Hopkins, David S.P. and Massy, William F. *Planning models for colleges and universities*. California, Stanford University Press (c1981) xxvi, 544 p.

Ingham, Jennie. *Books and reading development: The Bradford book flood experiment*. London, Heinemann Educational (c1981) xvi, 318p.

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International Commission for the Study of Communication Problems, 1977. *Many voices, one world: Towards a new more just and more efficient world information and communication order*. London, Kogan Page (c1980) xv, 312p.

Johnson, Mary Canice. *Discussion dynamics: An analysis of classroom teaching*. Massachusetts, Newbury House (c1979) xiv, 143p.

Joshi, K.L. *Higher education: Historical and other problems*. Bombay, Popular Prakashan. (c1981) v, 143p.

Khan, Mohammed Sharif. *Commerce education*. Delhi, Sterling (c1982) 126p.

Khan, M. Wasiullah, ed. *Education and society in the Muslim world*. London, Hodder ann Stoughton, 1981. x, 133p.

Kirk, Geoffrey, ed. *Schumacher on energy: Speeches and writings of E.F. Schumacher*. London, Jonathan Cape, 1982. xvii, 212p.

Kotei, S.I.A. *Book today in Africa*. Paris, Unesco, 1981. 210p.

Lofstedt, Jorn-Ingvar. *Chinese educational policy: Changes and contradictions 1949-79*. Stockholm, Almqvist and Wiksell International (c1980) 203p.

Lord Robbins. *Higher education revisited*. London, Macmillan, 1980. viii, 117p.

Mahlck, Lars. *Choice of post-secondary studies in a stratified system of education: A Swedish follow-up study*. Stockholm, Almqvist and Wiksell International (c1980) xiii, 132p.

Marland, Michael, and Hill, Sydney, ed. *Departmental management*. London, Heinemann (c1981) x, 177p.

McCormick, Robert, ed. *Calling education to account*. London, Heinemann (c1982) 376p.

Megarry, Jacquetta and others, ed. *World yearbook of education 1981: Education of minorities*. London, Kogan Page (c1981) 404p.

Menzies, Ken. *Sociological theory in use*. London, Routledge and Kegan Paul, 1982. viii, 250p.

Moraze, Charles and others. *Science and the factors of inequality: Lessons of the past and hopes for the future*. Paris, Unesco (c1979) 273p.

Morgenstern, Franz. *Teaching plans for handicapped children*. London, Methuen (c1981) xii, 196p.

Morris, Robert C. *Reading, writing and reconstruction*. Chicago, University of Chicago Press (c1981) xi, 341p.

Ozga, J.T. and Lawn, M.A. *Teachers professionalism and class: A study of organized teachers*. London, Falmer Press (c1981) x, 153p.

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INDIAN SCHOOL OF MINES

DHANBAD-826004

No. : 615120/82(A) **Dated : 1st December, 1982**

ADMISSION NOTICE-1983

Indian School of Mines, deemed to be a University under the UGC Act, invites applications from candidates desirous to appear at its Entrance Examinations for admission to the following groups of programmes :

I. 4-year (8-Semester) programme leading to the award of **B Tech** degrees in (i) Mining Engineering, (ii) Mining Machinery, (iii) Petroleum Engineering and (iv) Open Cast Mining. About 135 seats are likely to be offered for this programme this year-60 in Mining Engineering, 30 in Mining Machinery, 30 in Petroleum Engineering and 15 in Opencast Mining.

II. 3-year (6-Semester) programme leading to the award of **M Sc Tech** degrees in (i) Applied Geology and (ii) Applied Geophysics. 15 Seats are available in each course (Such students of this programme as may be obtaining minimum 60% marks or equivalent GPA in the examinations of the second year will be entitled to a scholarship @ Rs. 400/- per month in the final year.)

III. 3-year (6-Semester) **Condensed degree** programme leading to the award of B Tech degree in (i) Mining Engineering and (ii) Mining Machinery. 5 Seats are available in each course.

IV. 3-year (6-Semester) Special Entry programme leading to the award of B Tech degree in (i) Mining Engg (ii) Mining Machinery and (iii) Petroleum Engg.

V. 2-year (4-Semester) Special Entry programme leading to the award of B Tech degrees in (i) Mining Engg (ii) Mining Machinery.

Note : Admissions to Programmes IV and V are make-up admissions i.e. direct admissions to III-Semester and V-Semester respectively of the regular 4-year B Tech programme. Therefore the number of seats available in these programmes will depend upon the vacancies that may be available at the time of admission.

Entrance Examination for all the above programmes shall be held on May 7 (Saturday) and May 8 (Sunday), 1983.

Eligibility

For Programme I : Pass in Intermediate *OR* two-year PUC *OR* All India (XII Class) Senior School Certificate Examination *OR* +2 stage of the 10+2 pattern of education or equivalent in each case with Physics, Chemistry, Mathematics and English.

For Programme II : (a) Applied Geology : Pass in B Sc examination with Geology and any two subjects out of Physics, Chemistry and Mathematics. (b) Applied Geophysics : Pass in B Sc examination with Physics, and any two subjects out of Mathematics, Chemistry, Statistics, and Geology.

In both cases, the candidate should have passsed the 10+2 or equivalent examination with Physics, Chemistry, Mathematics and English.

For Programme III : Diploma in Mining (or Mining and Mine Surveying) in case of B Tech (Min Engg), and Diploma in Mech/Elec Engg in case of B Tech (Min Machinery), after having passed the SSLC/Matriculation or Higher Secondary or equivalent examination, *PLUS* three years' industrial experience *after* obtaining the diploma. Sponsored candidates are preferred for this programme.

For Programme IV : (i) Pass in Institution of Engineers Studentship examination with one year's experience in Mining/Petroleum industry or (ii) B Sc degree with Physics, Chemistry and Mathematics.

For Programme V : Diploma in Mining/Electrical/Mechanical Engg with pass in Section A of AMIE examination and one year's experience in Mining Industry.

Those who are appearing at any of the qualifying examinations may also apply; however their admissions (if selected) will be subject to the condition that their examinations (both theory and practicals) have finished earlier than 15th June 1983 and that the results are announced before the commencement of I Semester examinations of the School.

Maximum age limit (as on 1-10-1983) : *22 years* for admission to Programme I (except for Pet Engg for which it is *21 years*) 24 years for Programme II, 23 years for Programme IV (except for Pet Engg for which it is 22 years). These limits are relaxable by three years in case of SC/ST candidates. There is no age limit for admission to Programmes III and V.

(*Continued on page 760*)

CLASSIFIED ADVERTISEMENTS

THE GANDHIGRAM RURAL INSTITUTE

(Deemed University)

Gandhigram—624 302, Madurai District

Applications are invited for the following posts on or before 29th December, 1982.

Sl. No.	Name of the Post	No. of Posts	Scale of Pay
1.	Reader in Chemistry	One post	Rs. 1200-1900
2.	Reader in Biology	One post	Rs. 1200-1900
3.	Reader in Extension	One post	Rs. 1200-1900
4.	Reader in English	One post	Rs. 1200-1900
5.	Lecturer in Microbiology	One post	Rs. 700-1600
6.	Lecturer in Extension	One post	Rs. 700-1600
7.	Lecturer in Co-operation	Two posts	Rs. 700-1600
8.	Lecturer in Rural Industries and Management	One post	Rs. 700-1600
9.	Lecturer in Economics	One post	Rs. 700-1600
10.	Lecturer in Physics	Two posts	Rs. 700-1600
11.	Lecturer in Plant Protection	One post	Rs. 600-1050
12.	Lecturer in Mechanical Engineering	One post	Rs. 600-1050
13.	Field Co-ordinator	One post	Rs. 700-1600
14.	Publication Officer	One post	Rs. 700-1600
15.	Statistical Assistant	One post	Rs. 700-1600
16.	Microbiologist	One post	Rs. 750-1350
17.	Senior Technical Assistant	One post	Rs. 600-1050
18.	Workshop in-charge	One post	Rs 450- 800
19.	Junior Technician	One post	Rs. 350- 600
20.	Music Instructor	One post	Rs. 450- 800
21.	Production Manager	One post	Rs. 400- 600
22.	Physical Instructress	One post	Rs. 550- 900

N.B. Item Nos. 11, 12, 16, 17, 18, 19 and 20 carry III Pay Commission Pay Scales of Tamil Nadu Government.

Qualifications

Item No. 1 to 4.

Readers

A. Ph.D., Degree in the concerned field of specialization.

B. Teaching experience in any University or College for at least five years.

C. Experience in Research in the concerned field of Specialization as evidenced by published Papers in Scientific Journals and Books.

D. Experience in Extension work/Gandhian constructive service.

Item Nos. 5 to 10

Lecturers

A. Ph.D., Degree in the concerned field of Specialization.

B. A I or II Class Master's Degree holder in the concerned field with not less than five years teaching or Research Experience in any college or University may also apply.

C. Experience in Village Extension work/Gandhian constructive service.

Item No. 11

A. First or Second Class M.Sc. (Agri.) in the concerned field of Specialization.

B. Two to Three years experience.

Item No. 12

A. First or second Class M.E. (Ag.) or M.E. in Mechanical Engineering.

B. Two to three years experience.

Item No. 13

A. A Post-Graduate Degree in Social Sciences/Extension/Social Work.

B. Five years experience in Field work and Village service.

C. Experience in Gandhian Constructive Programme.

Item No. 14

First or Second Class Master's Degree preferably in English Language and Literature and two years professional Experience in Editing, Documenting, and bringing out Publications at an institution of repute. *Diploma* in Journalism desirable.

Item No. 15

A Doctor's Degree or Pultshed work of an equally high standard or M. Sc. Statistics Degree (I or II Class B Plus) with atleast 3 years of teaching and 2 years of Research experience.

Desirable : Ability to interpret Rural Data and Draft reports.

Item No. 16

I or II Class M.Sc. (Microbiology—Medical Faculty) with 3 years experience in the field.

Item No. 17

A. Graduate of a recognised University.

B Khadi Gramodhyog Karyakartha Training conducted by the Khadi and Village Industries Commisston.

C. 5 years experience in Village Industries work.

Item No. 18

Person trained in instrumentation.

First Class Diploma in Mechanical Engineering or D.C.R E.

Item No. 19

Certificate holder in I.T.I. Specialization in Glass Blowing/Carpentry Desirable.

Item No. 20

A. First or Second Class B. Music Degree.

B. Two years experience in South Indian Vocal Music.

Item No. 21

A. A Graduate of a Recognised University.

B. Khadi Gramodhyog Karyakartha Training conducted by the Khadi and Village Industries Commission.

C. 5 years experience in Managerial capacity in Village Industries Unit.

Item No. 22

A I or II Class Graduate with B.P. Ed., Degree Candidate with experience will be given preference.

Gandhian background and experience will be a desirable qualification for all applicants.

Candidates may apply giving their full Bio-data in detail along with true copies of Certificates enclosing Postal Order for Rs. 10/- payable to the Registrar, Gandhigram Rural Institute, Gandhigram—624 302, Madurai District payable at Gandhigram Post Office.

Last date of the receipt of application is **29ht Dec. 1982.**

Dr. T.R. Subramaniam
REGISTRAR

KERALA AGRICULTURAL UNIVERSITY

Main Campus, Vellanikkara
Pin 680654, Trichur

No. SS(2) 8734/82. Dt. 11-11-1983

Notification

Applications are invited from qualified candidates for appointment to the under mentioned posts in the Kerala Agricultural University Service.

1. **Professors** : 7 on Rs. 1450-2350

   2 in Agrl. Extension,
   1 each in Agrl. Engineering,
   Plant Protection, Plant,
   Pathology, Animal Reproduction
   and Animal Production Economics.

2. **Associate Professors** : 37 on Rs. 1125-1725

   Agronomy—5; Agrl. Engineering—4; Agri. Botany/Plant Breeding—3; Horticulture—4;

   Agrl. Extension—3; Agricultural Economics—3; Soil Science & Agrl.

Chemistry—2; Agricultural Entomology—2; Aquaculture—2; One each in Nematology, Plant Pathology, Vety. Pathology, Preventive Medicine, Surgery, Dairy Science, Fishery Engineering, Fishing Technology and Irrigation Engineering.

3. **Assistant Professors** : 53 on Rs. 800-1600

Agronomy-4; Soil Science & Agrl. Chemistry-6; Agrl. Botany-4; Agrl. Engineering-6; Horticulture-4; Biochemistry-2; Agricultural Statistics-2; Vety. Pathology-3; Aquaculture-3; Therapeutics-2; Animal Nutrition-2, Poultry Science-2; Statistics-2; Farm Manager (Poultry)-1; Jr. Poultry Pathologist-1; One each in Preventive Medicine, Surgery, Animal Breeding & Geneitcs, Plant Physiology; Plant Breeding, Microbiology, Agrl. Economics, Agrl. Extension, Agrl. Meteorology.

4. **Junior Assistant Professor** : 3 on Rs. 600-1270*

Aquaculture-1,
Ichtyology-1,
Farm Engineering-1.

*Post-Graduate hands will start Rs. 700/-

The prescribed application forms, and other details can be had from the Registrar, Kerala Agricultural University on request enclosing a self addressed 70 paise (paise seventy only) stamped envelope.

The last date for the issue of application form is **30-12-1982**. The filled in application should reach the Registrar on or before **15-1-1983**.

REGISTRAR

SRI VENKATESWARA UNIVERSITY

Neelam Sanjiva Reddy Bhawan
Tirupati

Advertisement No EII-2/1982 (3), dated 6-12-1982

Applications are invited in the prescribed form for the following posts in the University Service on or before **24-12-1982**.

S. No. 1	Post and Department 2	No. of Posts 3	Reserved for 4
	(a) TEACHING		
I.	**Department of Performing Arts** (S.V.U. College of Arts & Sciences, Tirupati).		
1.	Professor of Theatre Arts	One	
2.	Reader in Music	One	
3.	Lecturers (One each in Music, Treatre Arts, Dance and Fine Arts)	Four	1 B.C.
II.	**School of Business Management**		
4.	Professor of Business Management	One	
	(b) NON-TEACHING		
III.	**S.V.U. Health Centre, Tirupati** Junior Medical Officers (The permanent post is Reserved for B.C.-A and the temporary one is of the open category)	Two (1 Ty.)	

Scale of Pay

Professor	: Rs.	1500-60-1800-100-2000-125/2-2500
Reader	: Rs.	1200-50-1300-60-1900
Lecturer	: Rs.	700-40-1100-50-1600
Junior Medical Officer	: Rs.	1050-40-1250-50-1600 plus 20% N.P.P.A.

All the above posts carry D.A. etc., at the University rates.

The prescribed application form and and other particulars can be had from the Registrar, Sri Venkateswara University, Tirupati-517 502, Andhra Pradesh on payment of Rs. 10/- either by Andhra Bank Challan or State Bank of India Challan or by crossed Demand Draft drawn in favour of the Registrar, Sri Venkateswara University, Tirupati-517 502, Andhra Pradesh.

The requisition for the application forms in respect of teaching posts must be accompanied by a self-addressed envelope of the size of 12"x8" duly affixing stamps worth Rs. 2-50. Requisitions for the application forms and other particulars received without self addressed envelopes and/or without requisite fee will be rejected.

Application fee once paid will neither be refunded nor adjusted towards any fee payable.

K. C. Reddy
REGISTRAR

INDIAN SCHOOL OF MINES

(Continued from page 758)

General

(i) Those qualifying in the Entrance Examination for Programmes II and III, as also for Pet Engg—Programme I, may be required to appear for a personal interview as well.

(ii) 15% of the seats in all programmes are reserved for Scheduled Caste and 5% for Scheduled Tribe candidates.

(iii) One seat each in Applied Geology and Applied Geophysics (Programme II) is reserved for GIRL CANDIDATES subject to their qualifying in the relevant Entrance Examination. Girl candidates are not eligible for other programmes.

(iv) Last date for availability of Form by post : February 22, 1983.

(v) LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS : FEB 28, 1983. No reason whatsoever shall be considered valid for late submission of the completed form.

Detailed Memorandum of Information and the Application Forms (A, B, C, D or E), available from 11th January, 1983 onwards (Form A for Programme I, Form B for Programme II, Form C for Programme III, Form D for Programme IV and Form E for Programme V), can be had from the office of the undersigned either in person or by post on remitting a crossed Postal Order for Rs. 5/- payable to Registrar, Indian School of Mines, Dhanbad at ISM Post Office, Dhanbad.

Candidates should CLEARLY SPECIFY the form they require (A, B, C, D or E) in their request for the application form.

S.P. Varma
REGISTRAR

UNIVERSITY OF ROORKEE

ROORKEE

Advertisement No. EST (A)/3/11/82 **Dated : Nov. 20, 1982**

Applications on prescribed form, obtainable from the Registrar either personally or by sending a self addressed envelope (9″ × 4″) affixed with 1.10 paise stamps, are invited for the following posts. The prescribed qualifications may be relaxed for candidates with exceptional research/industrial/administrative experience. Higher starting salary could be offered to candidates depending on their qualifications and experience. Contributory Provident Fund and Dearness Allowance will be admissible as per University rules. The age of superannuation is 60 years. Applicants should generally not be above 55 years. Candidates in employment are required to send their applications through proper channel. Applications received late incomplete or without required remittance will not be entertained.

Last date for receipt of complete application on prescribed form alongwith application fee of Rs. 10/- (By a Bank Draft or Indian Postal Orders in favour of the Registrar, University of Roorkee) is January 20, 1983 (Feb. 20, 1983 for overseas candidates).

Sl. No.	Department	Professor (1500-2500)	Reader (1200-1900)	Lecturer (700-1600)
A.	**Architecture and Engineering Departments**			
1.	Architecture & Planning	—	—	3 R 2 TLR
2.	Electrical Engg.	3 R	3 R 1 T	1 R 8 T
3.	Computer Science & Technology under Electronics & Communication Engg	1 T	1 T	1 T
4.	Earthquake Engg.	—	2 T	1 TLR 3 T
5.	Institute of Paper Technology (Saharanpur)	1 T (Pulp & Paper)	1 T (Pulp & Recov.)	—
6.	University Service and Instrumentation Centre	—	1 T	—
7.	Water Resources Development Training Centre	—	2 R 2 T	—
B.	**Sciences & Humanities**			
1.	Bio-Sciences	—	1 R	—
2.	Chemistry	—	—	1 R 1 T
3.	Humanities & Social Sciences	—	—	2 R 1 T (One R each in Germen, Eco. and One T in Hum.)
4.	Mathematics	1 R 1 T	—	—

C. Other Posts

1. **Director Technical Publication** (Rs. 1500-1800)-One (R) (Old)
2. **Junior Instructor (Electrical) at** I.P.T. (Rs. 850-1720)-One (T) (revised)
3. **Supdt. Workshop** (Rs. 1250-2050)-One (T) (revised)
4. **Asstt. Supdt. Workshop** (Rs. 850-1720)-One (R) (revised)
5. **Assistant Accounts Officer** (Subs) (Rs. 690-1420)-One (T) (revised)
6. **System Manager (Hardware/Software)** (Rs. 1100-1600)-One (R) (Old) For Computer Centre.
7. **Research Associate (Physics)** -One (T) (Consolidated Pay of Rs. 1100,1300 or 1500 p.m.)

[illegible] **Research Technician** (USIC) (Rs. 690-1420)-Two (T) (revised)

Prescribed Qualifications and Experience for Teaching Posts
Qualifications for Engineering Department :

Professors : Qualifications : Essential : (a) A Doctor's degree and published work of high standard. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level. (c) Experience in guidance of research, preferably at Ph. D. level (d) 12 years experience of teaching/research/design and industry in appropriate field with at least 5 years in teaching/research.

Desirable: (a) Teaching experience in an Institution of University level. (b) Specialised industrial experience in the appropriate field.

Reader : Qualifications : Essential : (a) A Doctor's degree or A Master's degree with published work of high standard (b) Consistently good academic record with at least I Class Master's or Bachelor's level. (c) 7 years' experience of teaching/research/design and Industry in appropriate field with at least 2 years experience in teaching/research.

Desirable : (a) Experience in guidance of research (b) Teaching experience in an institution of University level (c) Published research work.

NOTE : A candidate selected for Reader post who does not hold a Ph. D. must acquire the same within 5 years of his appointment failing which he will cease to draw the annual increment until he acquires the Ph. D. degree.

Lecturer : Qualifications: Essential : (a) A Master's degree (b) Consistently good academic record with I Class at Bachelor's degree and/or Master's degree level. (c) One year's relevant professional experience outside academic/research institutions. *NOTE* : 1. A candidate selected for teacher's post who does not hold at Ph.D. must acquire the same within 7 years of his appointment failing which he will cease to draw the annual increment until he acquires the Ph. D. degree. (2) Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a peried of 5 years of his appointment failing which he will not be able to earn future increments, until he fulfils this requirement.

Qualifications for Sciences, Humanities and Social Sciences Department

Professors : Qualifications : Essential : (a) A Doctor's degree and published work of high standard. (b) Consistently good academic record with at least I Class at Master's or Bachelor's level. (c) Experience in guidance of research preferably at Ph. D. level. (d) 12 years experience of teaching/research.

Desirable: Teaching experience in an Institution of University level.

Readers : ***Qualifications : Essential*** : (a) A Doctor's degree (b) Consistently good academic racord with at least I Class at Master's or Bachelor's level. (c) 7 years' experience of teaching/research/design and industry in appropriate field with at least 2 years' experience in teaching/research.

Desirable : (a) Published research work (b) Experience in guidance of research (c) Teaching experience in an Institution of University level.

Lecturer : **Qualifications** : **Essential** : (a) A Doctor's degree (b) Consistently good academic record with at least I Class at Master's or Bachelor's level.

Desirable : (a) Teaching experience in an Institution of University level.

NOTE: If a candidate for Lecturer's post possessing a Doctor's degree or equivalent published work is not available or is not considered suitable, a person possessing a consistently good academic record (due weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Ph. D. degree within 7 years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Qualifications for Architecture Department

Lecturers : ***Qualifications*** : **Essential** : (a) Bachelor's degree in Architecture plus 2 years of relevant professional experience.

OR

Master's degree in Arch. and One year's relevant professional experience, (b) Consistently good academic record with at least I Class at Master's or Bachelor's level.

NOTE : Provided, further that if a candidate does not possess a Master's degree in Architecture and professional Engineering or a person possessing such experience is not found suitable, the person appointed will be required to obtain the Master's degree within a period of 5 years of his appointment failing which he will not be able to earn future increment until he fulfils this requirement.

Qualifications for Other Posts

1. **Director Technical Publication**

Qualifications Essential : (a) A Doctor's degree with Master's or Bachelor's degree in Engg., OR A Master's degree with published work of high standard (b) 7 years experience of teaching/research/design/or construction in any branch, of the profession related to water resources Engg.

Desirable : (a) Proficiency in language with a flair for writing, experience of technical publishing. (b) Experience in teaching in an institution of University level.

2. **Junior Instructor (Electrical) at I.P.T. (Saharanpur)**

Qualifications : Essential : (a) Atleast high second class Bachelor's degree in Electrical Engg. or Equivalent.

Desirable : (a) Master's degree in Electrical Engg. (b) Experience in teaching/research/consultancy/Paper Industry, in the field of Electrical Engg.

3. **Superintendent Workshop**

Qualifications : A good degree or equivalent in Mechanical/Production Engineering followed by a Master degree, with a total of about seven years practical experience in an Industry/Workshops.

4. **Asstt. Superintendent Workshop** : **Qualifications** : A Master's degree in Mech./Production/Industrial Engg. with at least one year's shop floor experience. OR A Bachelor's degree or equivalent in Mechanical/Production/Industrial Engg. with 5 years experience, out of which at least 2 years should be shop floor experience and minimum of 2 years teaching experience of subjects related to Workshop Technology at University level.

Desirable : Administrative experience of Engineering Workshop.

5. **Assistant Accounts Officer (For Subsidiary Funds)**

Qualifications : **Essential** : (a) Second class graduate with eight years experience of audit & accounts work in Govt. Deptt. or autonomous body. (b) Good knowledge of Hindi.

Preferential : Diploma of Institute of Chartered Accounts of India or passed S.A.S. examination conducted by the Comptroller & Accountant General of India.

6. **System Manager (Hardware/Software) For Computer. Centre**:

Qualifications : Master's or P. G. Diploma in Computer Tech./or Master's degree in Engg./ or Ph. D. in Science.

Specialised experience in Computer Hardware/Software :

Experience : 7 years experience of teaching/research, design and industry/Systems Management System Hardware/Software.

7. **Research Associate (Physics)** : **Qualifications** : (a) A Doctor's degree or published work of an equally high standard. (b) Consistently good academic record with Ist or High 2nd (B+) Master's Degree or an equivalent qualification.

Specialisation : (a) Theoretical/Experimental, Solid State Physics (Transport, Magnetic and Electrical Properties) OR Physics of Collision Processes (non-linear phenomenon, ion-molecule reactions etc.).

8. **Research Technician** (USIC)

Qualifications : B. Sc. or 3 years diploma in Electrical/Electronics with 7 years experience. Experience may be relaxed for M.Sc. (Phy) candidates having good academic record.

Preference will be given to candidate having experience of operation and maintenance of sophisticated instruments.

NOTE : 1— Where the number of posts is Two, One is reserved for Scheduled Castes/Scheduled Tribes.

2— Other details required for various posts alongwith specialisation etc. will be supplied alongwith application form.

3— Applicants who are in the employment should send their applications through their employer.

4— Number of posts shown above may change at the time of selection.

R= REGULAR, T= TEMPORARY, TLR= TEMPORARY LIKELY TO BECOME REGULAR.

Dr. O.N. Chaturvedi
REGISTRAR

PANJAB UNIVERSITY
CHANDIGARH
Advertisement No. 10/82

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, alongwith postal orders of **Rs. 10/-** by **31.12.1982**. Fourteen days extra time is permissible to the persons who have to submit their applications from abroad.

1. **Professors** : (Rs. 1500-60-1800-100-2000-125/2-2500)

   Bio-chemistry-1, Theoretical Chemistry-1 (under UGC Special Assistance Programme), Chemistry-1 (Chemical Education) (under 'COSIP' ULP), Pharmacognosy-1, Botany-1 and Mathematics-2.

2. **Director, Directorate of Correspondence Courses**

   (Rs. 1200-50-1300-60-1900).

3. **Readers** : (Rs. 1200-50-1300-60-1900)

   Physical Organic Chemistry-1, Physical Inorganic Chemistry-1, Microbiology-2, Zoology-1 (Temporary but likely to be permanent), Nuclear Spectroscopy-1 (under U.G.C. Special Assistance Programme-Department of Physics), Mathematics-6 (permanent-3, one is reserved for Applied Mathematics) (Temporary, but likely to be permanent-3). Statistics-2 ; Commerce-1 and Mathematics-1 (Directorate of Correspondence Courses).

Candidates for the posts of Professors and Readers who do not possess a doctoral degree are required to submit 10 typed cyclostyled copies of brief resume of their published work.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Attested copies of Certificates in support of qualifications for Matriculation School Leaving, Graduation as also Post-graduate examinations be attached to the application. Serving employees may, however, send their applications on the prescribed proforma direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of 'No Objection Certificate' from their employers. Canvassing in any form will disqualify the candidate.

Application forms, alongwith detailed qualifications and instructions etc. can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of **Rs. 2/-** or by making a written request to the Finance & Development Officer, Panjab University, accompanied by self-addressed stamped envelope of 23 x 10 cms. and postal order for **Rs. 2/-** drawn in favour of the Registrar, Panjab University, Chandigarh.

DAYALBAGH EDUCATIONAL INSTITUTE
(DEEMED UNIVERSITY)
DAYALBAGH, AGRA-282005

WANTED : (1) Assistant Registrar (Accounts-One) (2) Lecturers (Mechanical/Electrical Engineering-One each) (3) Teaching Assistant (Mechanical-One).

PAY SCALES : (1) Rs 500-1000 (2) Rs 700-1600 (3) Rs 850/- for graduates and Rs 950/- for postgraduates.

MINIMUM QUALIFICATIONS : For (1) Graduate with 10 years experience of accounts work in a Government/Semi Government Educational Institute of which atleast five years should have been in an Officer Cadre.

For (2) : (a) Master's degree in appropriate field in Engineering/Technology (b) Consistently good academic record with a bachelor's degree in Engineering/Technology. First Class at Bachelor's degree OR Master's degree level (Preferably in Design, Strength of Materials or theory of Machines) (c) One year's relevant professional experience outside academic research institution.

Having regard to the requirements of emerging fields of engineering and of developing inter disciplinary programmes, the requirements of Engineering/Technology degree may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of eight years of his appointment failing which he will not be able to earn future increments until he fulfils this requirement.

Candidates with first class Bachelor's degree in *Engineering/Technology* may also apply but they will have to acquire M. Tech/M.E. within 5 years of their appointment.

If suitable candidates are not available for the post of Lecturers, the applicants may be considered for the post of Teaching Assistant.

For (3) Bachelor's degree in Mechanical Engineering with 70% marks and above OR Master's degree in Mech. Engineering.

Prescribed applications can be obtained from the Institute office by sending Bank Draft for **Rs. 5/-** payable to the "Dayalbagh Educational Institute" on any Bank at Agra. Completed application forms together with attested true copies of all certificates should reach the Registrar latest by **29-12-1982**.

Note : The posts are reserved for Scheduled Caste/Tribes candidates but will be treated unreserved if suitable SC/ST applicants are not available.

PANJAB UNIVERSITY
CHANDIGARH
Advertisement No. 8/82

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, along *with* postal orders of ***Rs. 10/-*** by **31.12.1982**. Fourteen days extra time is permissible to persons who have to submit their applications from abroad :-

1. **Professors** : (Rs. 1500-60-1800-100-200, -125/2-2500)

   (Ancient Indian History, Culture & Archaeology-1, Economics-2; Punjabi-1 ; Physical Education-1, Education-1 (Temporary-leave vacancy)

2. **Director-Professor 1** (Rs. 1500-60-1800-100-2000-125/2-2500)

   (V.V.B.I.S. & I.S., Hoshiarpur)

3. **Readers** : (Rs. 1200-50-1300-60-1900)

   Labour Law-1 ; Public Administration-2 ; Sanskrit-2 ; Sociology-1 ; History-2; Geography-2 (one Permanent & one temporary but likely to be permanent) ; French-1 ; German-1 ; Sanskrit-1 (Teaching, VVBIS & IS, Hoshiarpur).

Candidates for the posts of Professors and Readers who do not possess a doctoral degree are required to submit 10 typed cyclostyled copies of brief resume of their published work.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained. Attested copies of Certificates in support of qualifications for Matriculation School leaving, Graduation as also post-graduate examinations be attached to the application. Serving employees may, however, send their applications on the prescribed proforma, direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for Interview only on the production of 'No Objection Certificate' from their employers. Canvassing in any form will disqualify the candidate.

Application forms along with detailed qualifications and instructions etc. can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of **Rs. 2/-** or by making a written request to the Finance & Development Officer, Panjab University, accompanied by self-addressed stamped envelope of 23×10 cms. and postal order for **Rs. 2/-** drawn in favour of the Registrar Panjab University, Chandigarh.

REGIONAL ENGINEERING COLLEGE

CALICUT

***Advertisement* No. P1-11542 82**

Dated : 18-11-1982

Applications are invited for the following posts :

I. Professors :

		No. of Posts
1.	Instrumentation & Control Systems. (Electrical) (P.G. Professor).	1 Permanent.
2.	Refrigeration & Air Conditioning. (Mechanical) (P.G. Professor).	1 -do-
3.	Electronics Engineering.	1 -do-
4.	Electrical Engineering.	1 -do- vacancy will arise from 1-5-83.
5.	Civil Engineering.	1 Permanent.
6.	Mechanical Engineering:	2 (one Permanent and one temporary).

Qualifications and Experience Essential

(i) A Doctorate degree in the concerned branch of Engineering or technology with a minimum of 10 years experience in teaching, *research or industry* of which 5 years shall be in institutions at University level.

(ii) First or Second Class Post-graduate degree or equivalent qualification in the concerned field. Those having second class Postgraduate degree must have First Class *in the* basic *degree in* Engineering or Technology.

Note : For P.G. Professor's post at least two years teaching at P.G. level is essential.

II. Professor of Training and Placement : (No. of post—one-permanent).

Qualifications & Experience Essential

(i) A Doctorate degree in any-branch of Engineering or Technology *with a minimum* of 10 years experience in teaching, research or industry of which 5 years shall be in Institutions of University level. Administrative experience, *particularly* with reference to training and or *project planning*, placement *etc.*, in industry/research institutions educational institutions is desirable.

(ii) First or Second Class Postgraduate Degree or equivalent qualification *in any branch of* Engineering or Technology. Those having Second Class Postgraduate Degree must have First Class in the basic degree in Engineering or Technology.

III. Assistant Professors

		No. of Posts.
1.	Electronics Engineering.	1 Permanent
2.	Electrical Engineering	1 -do-
3.	Civil Engineering	1 Temporary
4.	Refrigeration and Air Conditioning (Mechanical)	1 -do-
5.	Mechanical Engineering.	3 (one permanent + two temporary).

Qualifications & Experience *Essential*

(i) A First or Second Class Postgraduate Degree or equivalent qualification in the appropriate field. Those having Second Class Postgraduate degree must have First Class in the basic degree in Engineering or Technology.

(ii) 5 years experience of which 3 years shall be teaching in technical *institutions of University* standard in the field concerned and the rest may be in industry and or research.

Note : Doctorate degree holders need have only 3 years' teaching experience in institutions of University standard.

For the Posts I, II & III the following qualifications are desirable :

(i) *Published work of high standard*

(ii) Experience *in* guiding research

(iii) Specialised knowledge in one or more fields.

IV. **Registrar** : (No. of post - one-Permanent).

Qualifications & Experience

(i) A First or Second Class Degree in Arts, Science, Commerce or Business Administration.

(ii) Not less than 15 years experience in a responsible position either in Academic or Business Organisation of *repute or Government* Department.

(iii) Adequate experience in *Finance.* Experience in *Financial Affairs* such as budgeting, accounts and experience in preparation of agenda, recording of minutes and handling of correspondence *with the Store Purchase* is essential.

Scale of Pay

For Professors : Rs. 1500-60-1800-100-2000-125/2-2500.

For Assistant Professors : Rs. 1200-50-1300-60-1900.

For Registrar : Rs. 1125-70-1725.

For all posts Dearness Allowance and other allowances will be admissible according to the rules adopted by the *College.*

Maximum age as on 1-1-1983

For Professors : 50 years

For Assistant Professors : 45 years

For Registrar : 45 years.

Age limits *specified* above *shall* not be applicable in case of candidates already in the Calicut Regional Engineering College Service.

Any of the qualifications fixed in respect of the above posts can be relaxed by the Selection Committee in case of exceptionally *qualified* and meritorious persons.

Higher starting pay is admissible in deserving cases. Candidates attending interview will be paid single Second Class to and fro railway fare or bus fare by the shortest route.

Any candidate applying for more than one post shall send separate application for each post.

Application form can be had from the Registrar, Regional Engineering College, Calicut, Kerala PIN : 673601 on requisition accompanied by a self-addressed and 70 paise stamped envelope (25 cm x 10 cm) together with a crossed Postal Order for Rs. 2 - in his favour. Name of the post for which application is intended shall be specified in the requisition.

Attested copies of certificates showing qualification, age and experience should be sent along with the application in the prescribed form, together with a Registration fee of **Rs. 10** - in the form of crossed Indian Postal Order drawn in favour of the Registrar, Regional Engineering College, Calicut.

Candidates in service shall submit their applications through proper channel or shall produce 'No Objection Certificate' at the time of interview.

Completed applications should reach the Registrar at the address shown above on or before **31st December, 1982.**

Incomplete applications and applications without the requisite registration fee will not be considered.

Principal & Secretary

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